

FIG. 1A

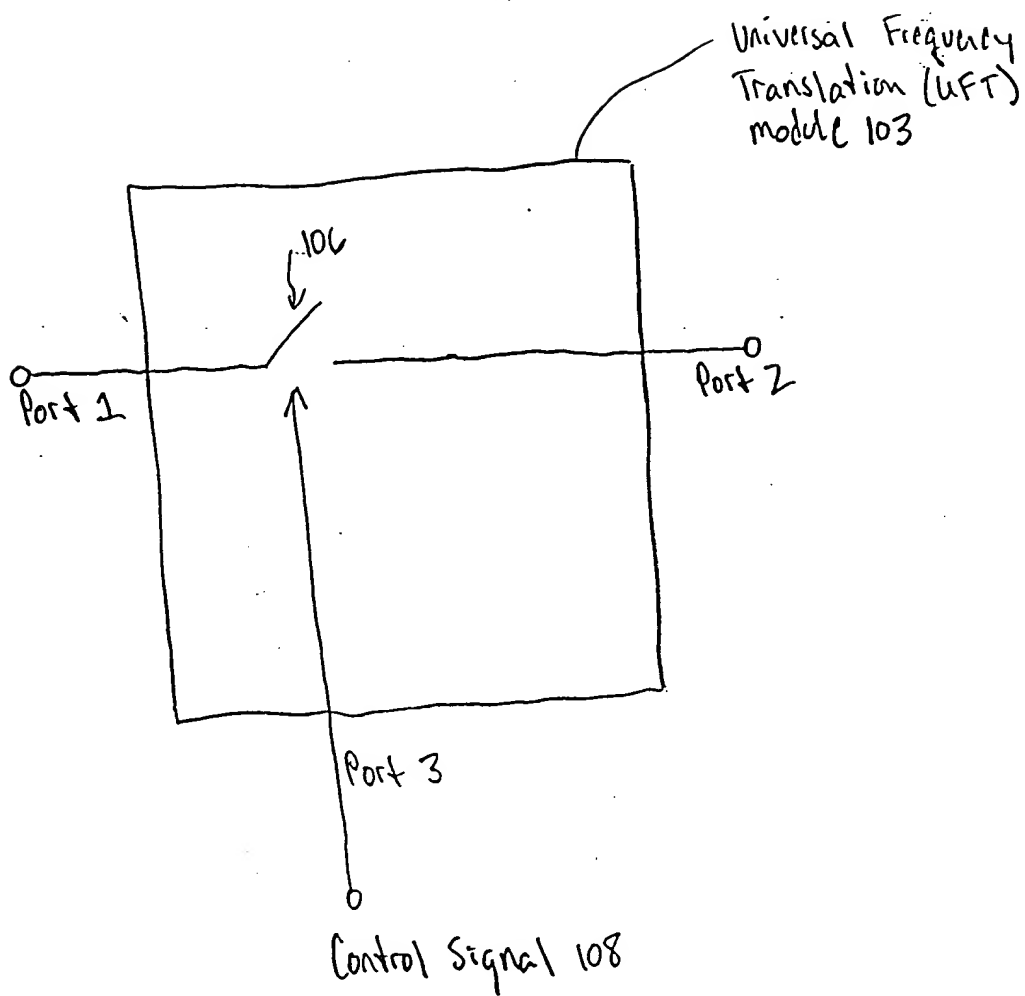


FIG. 1B



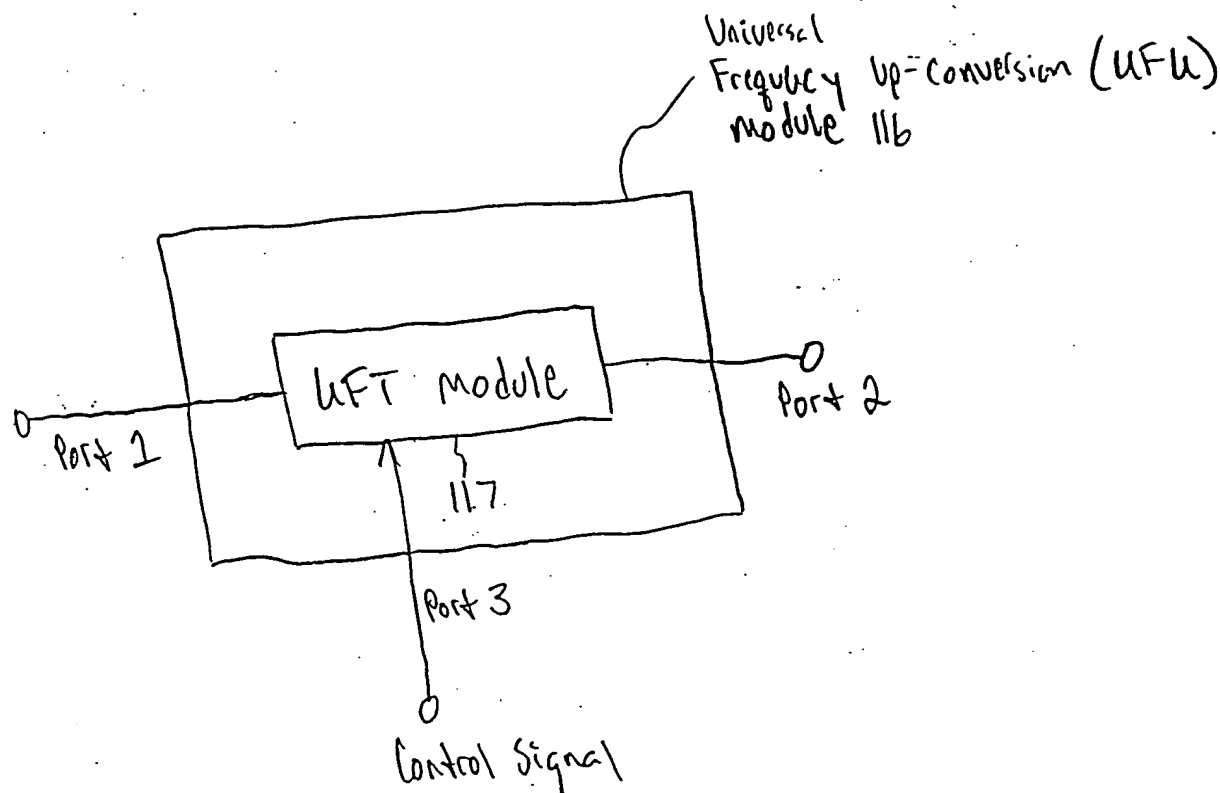


FIG. 1D



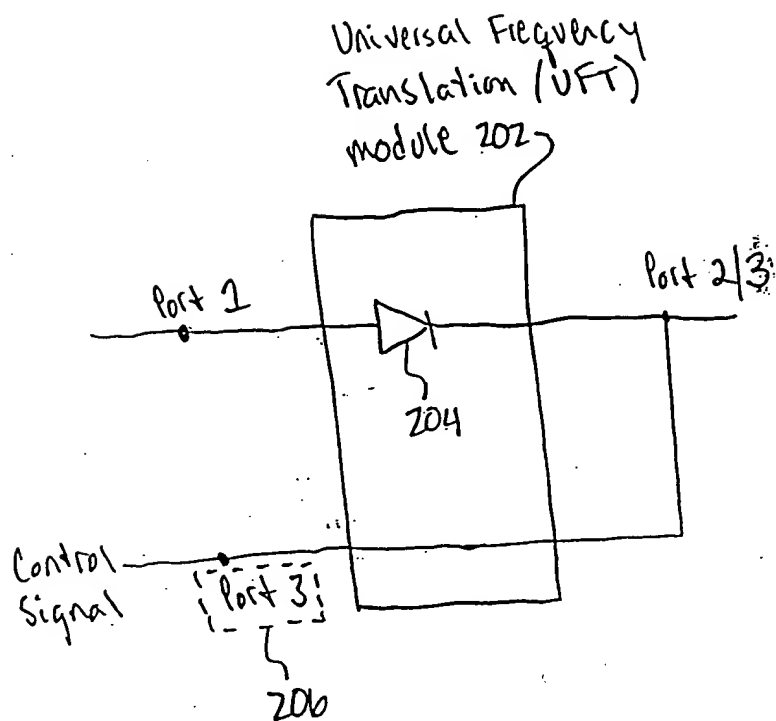


FIG. 2A



Universal Frequency  
Up-Conversion (UFU) module 300

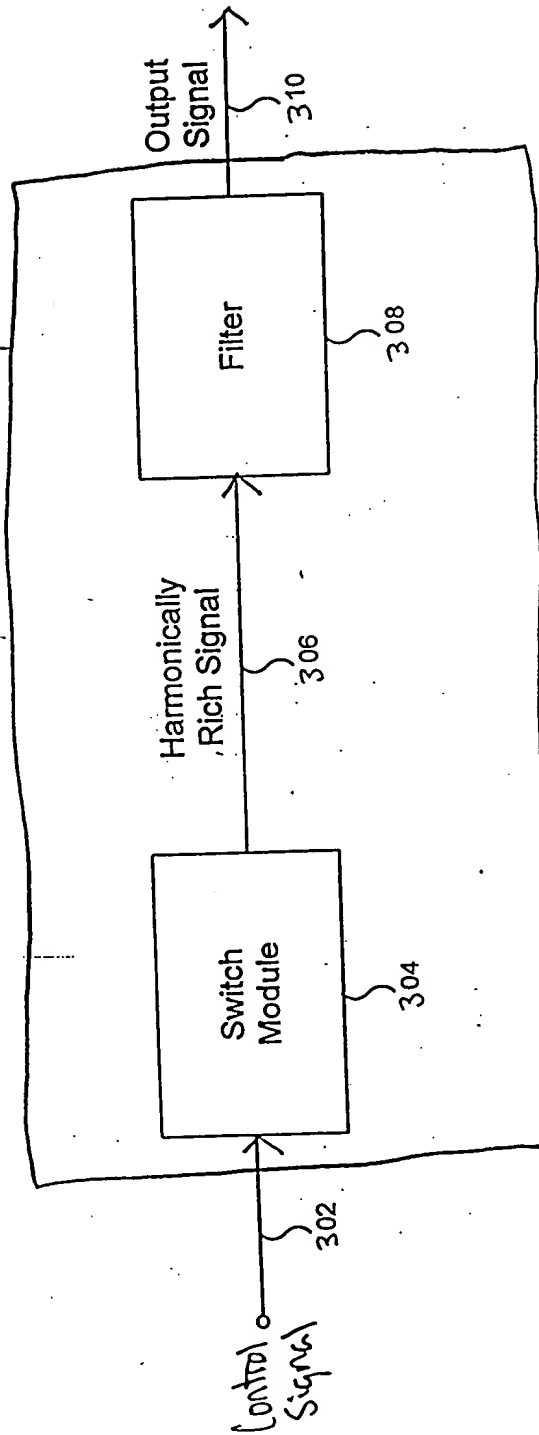


FIG. 3

Universal Frequency  
Up-conversion (UFC) module 401

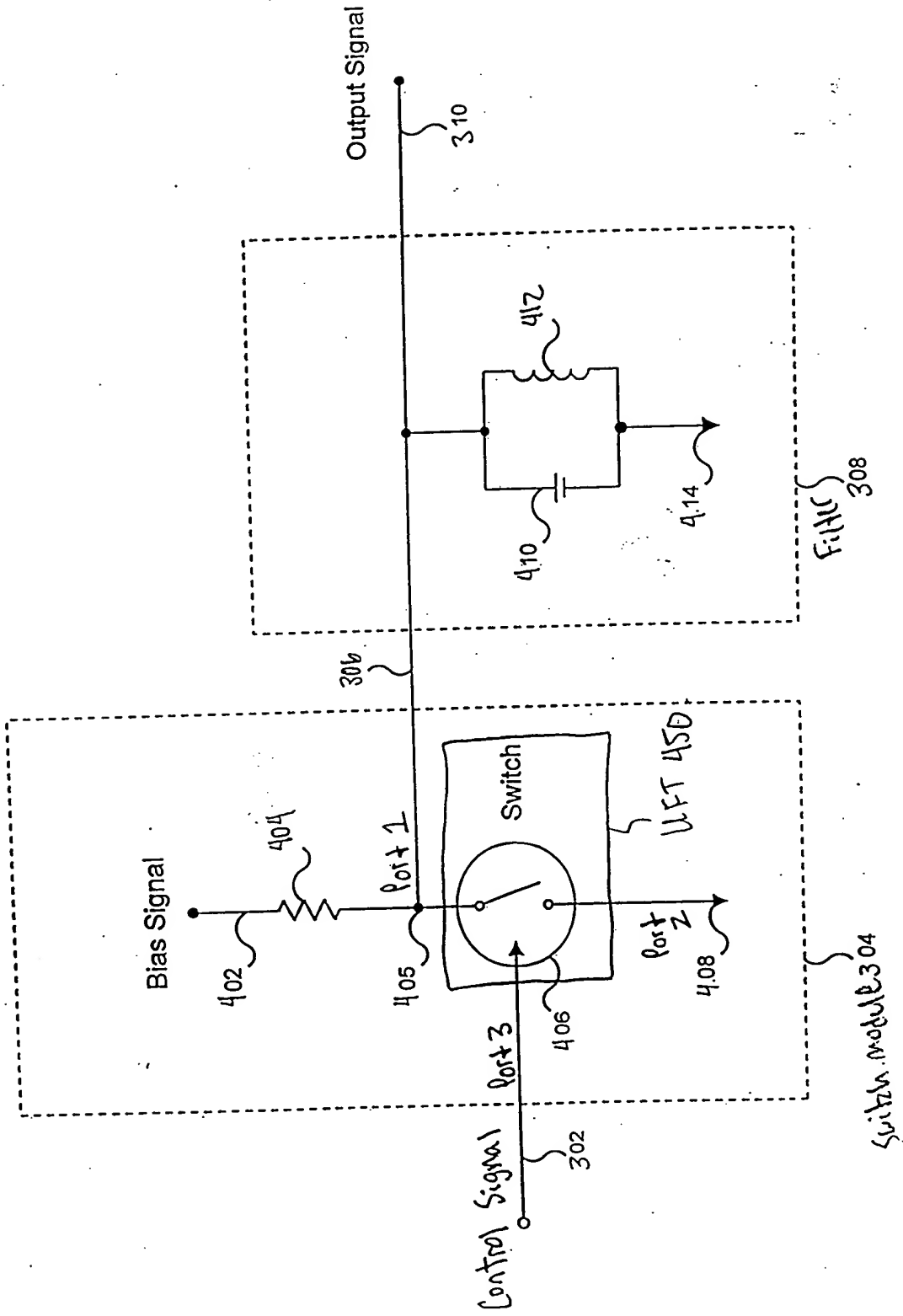


FIG. 4

Universal Frequency  
up-conversion  
(UFW) module 590

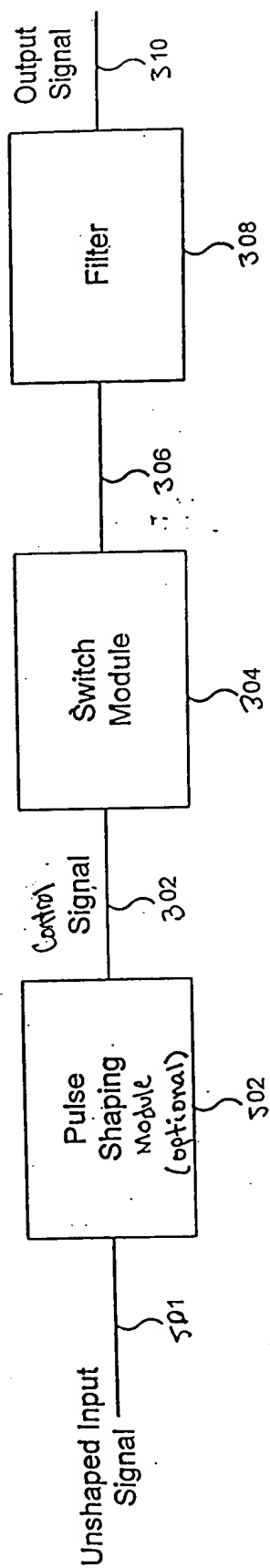


FIG. 5

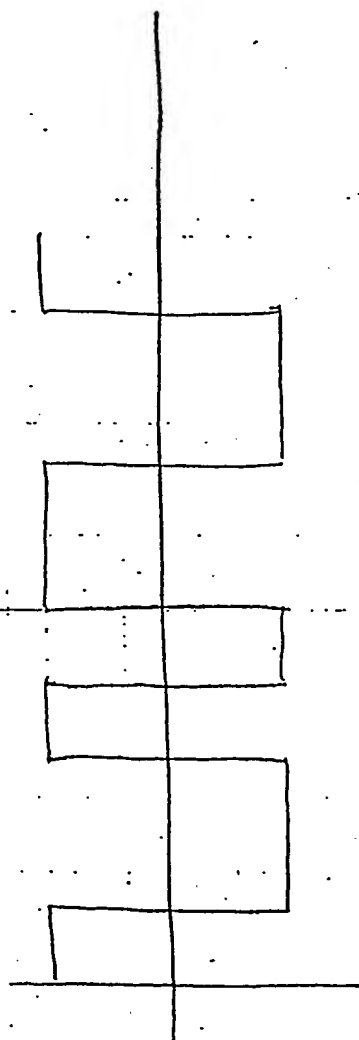


Fig. 6A

INFORMATION  
SIGNAL  
602

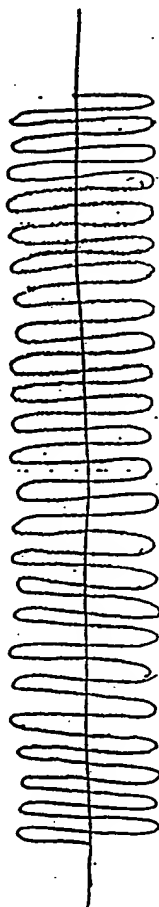


Fig: 18

OSCILLATING  
SIGNAL  
6.04

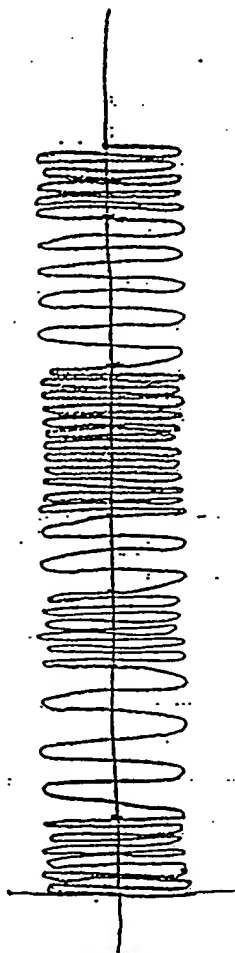


FIG. 6C

FREQUENCY MODULATED  
INPUT SIGNAL

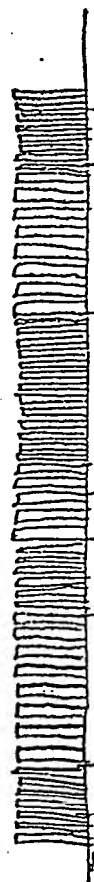


Fig. 10

809  
HARMONICALLY  
RICH SIGNAL  
(SHOWN AS SQUARE WAVE)

31.01.22



[illegible]

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610 612

Fig 49

610c 612c

Fig. 6T

FIG 6 (cont)



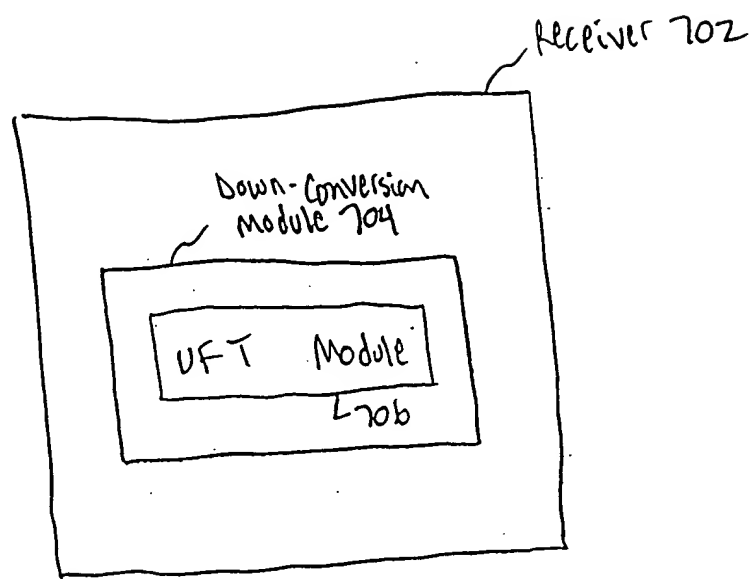


FIG. 7

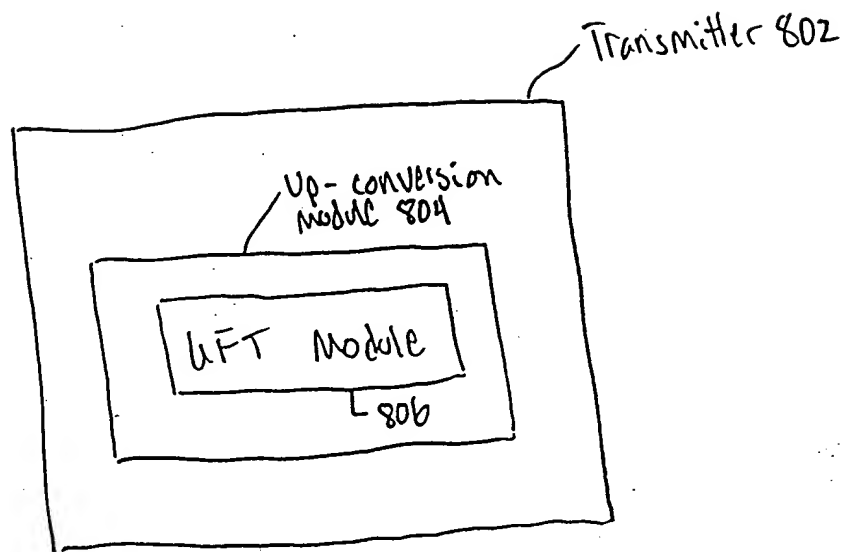


FIG. 8



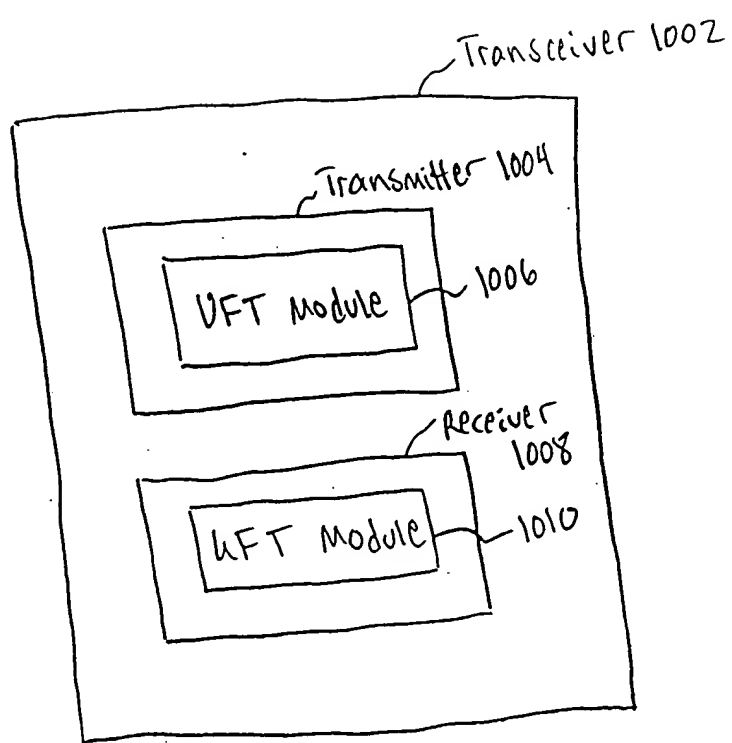


FIG. 10

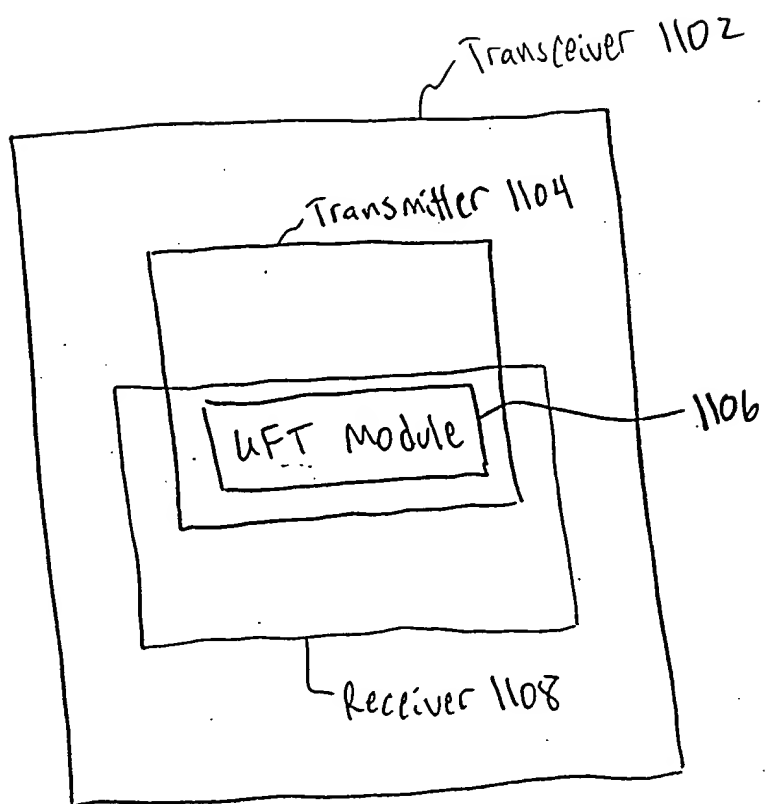


FIG. 11

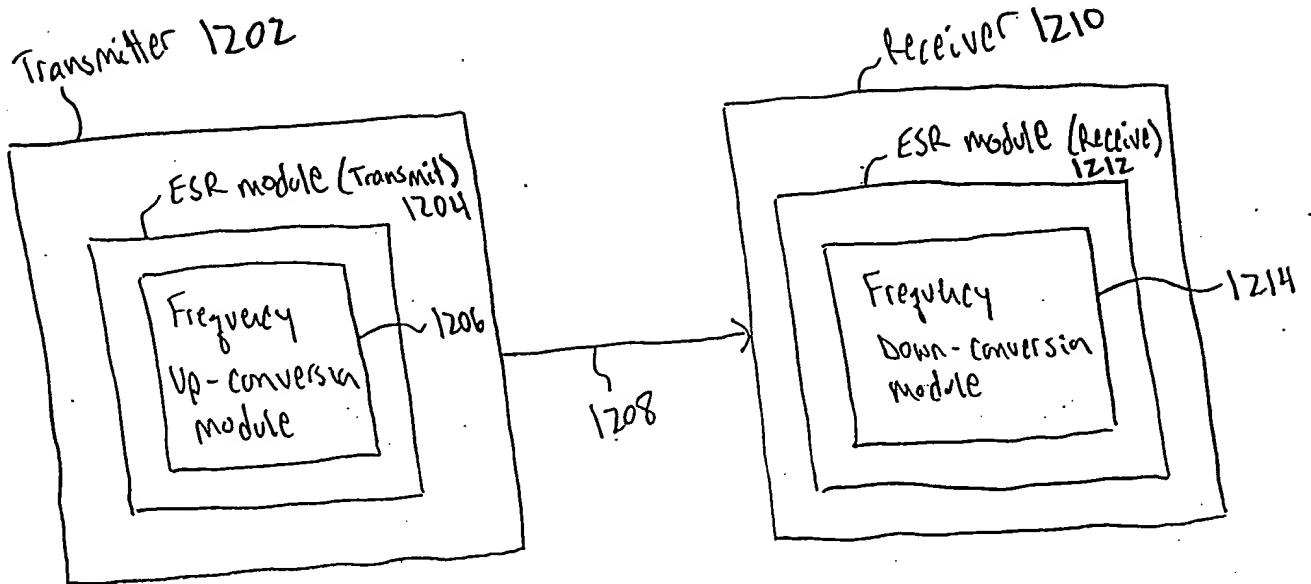


FIG. 12

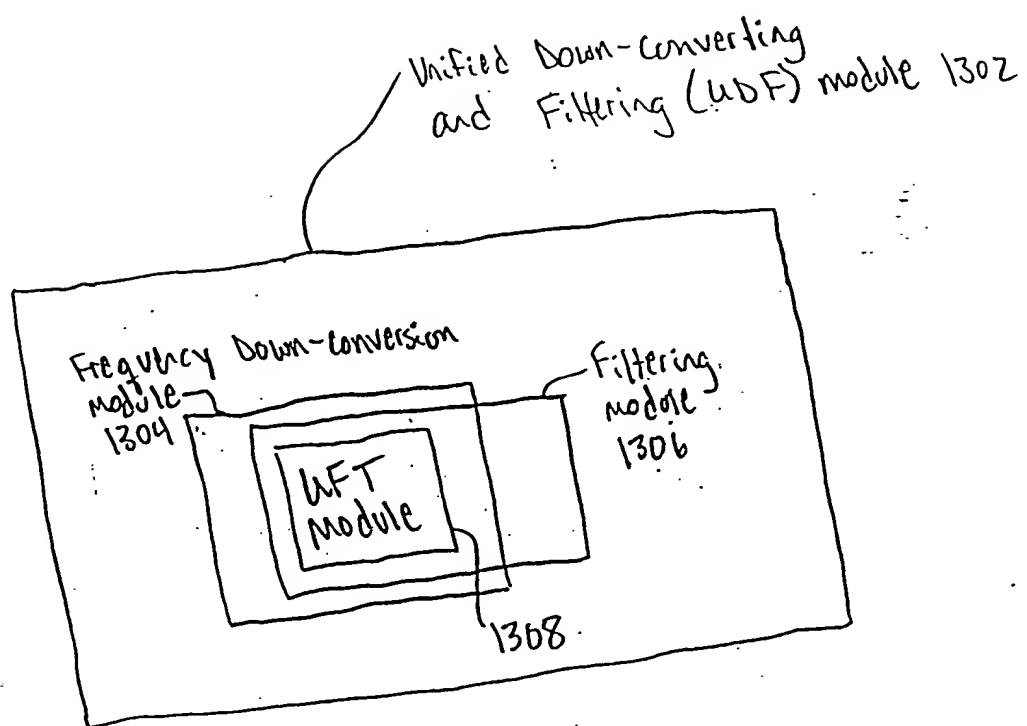


FIG. 13

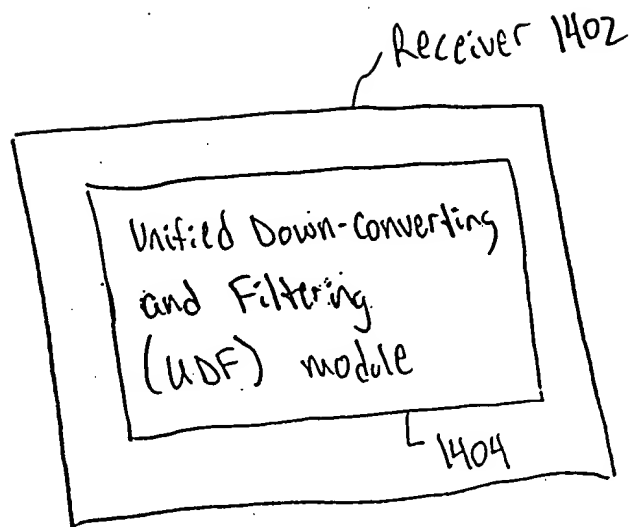


FIG. 14



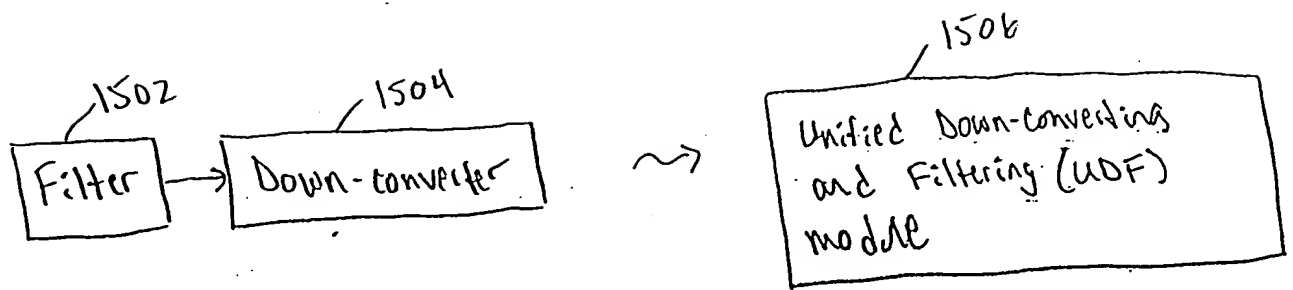


FIG. 15A

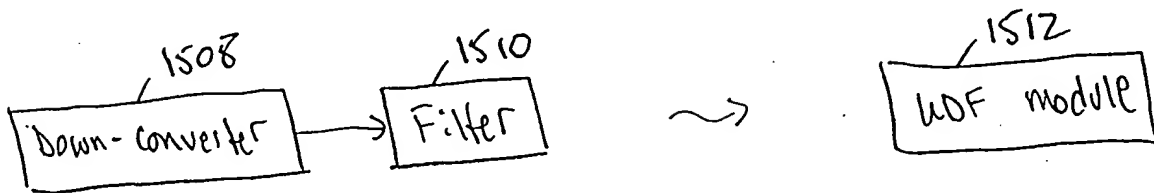


FIG. 15B

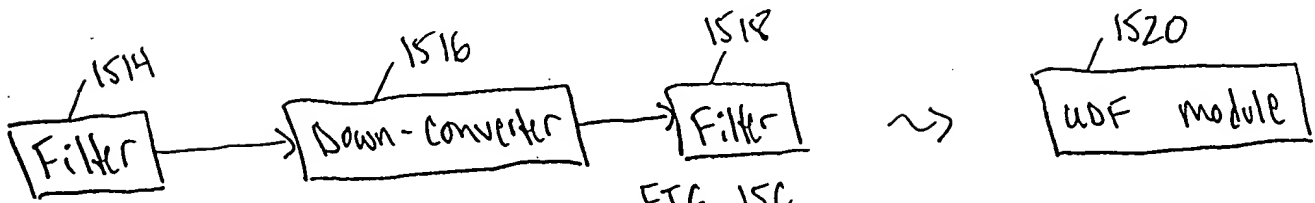


FIG. 15C



FIG. 15D



FIG. 15E



FIG. 15F

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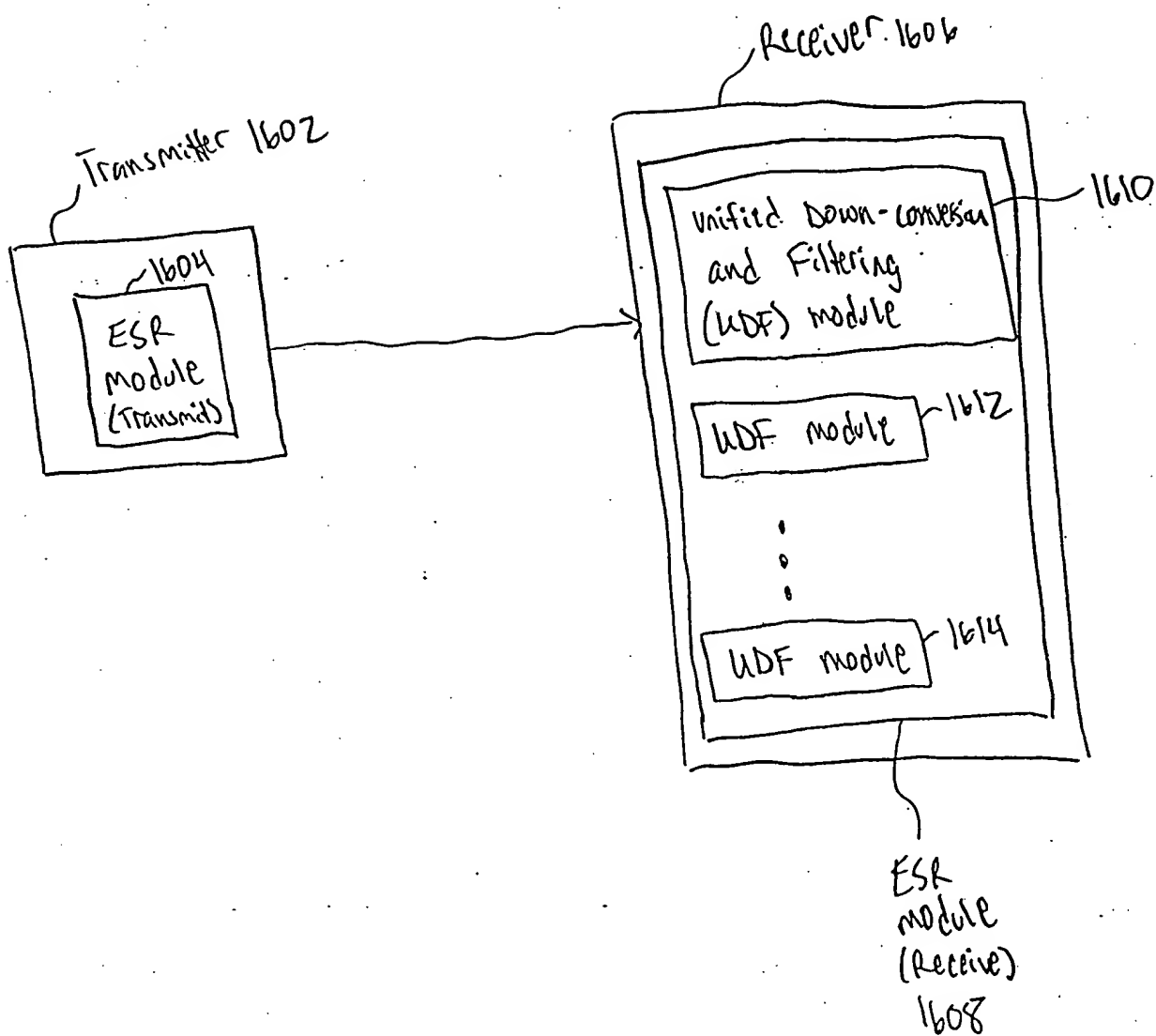


FIG. 16

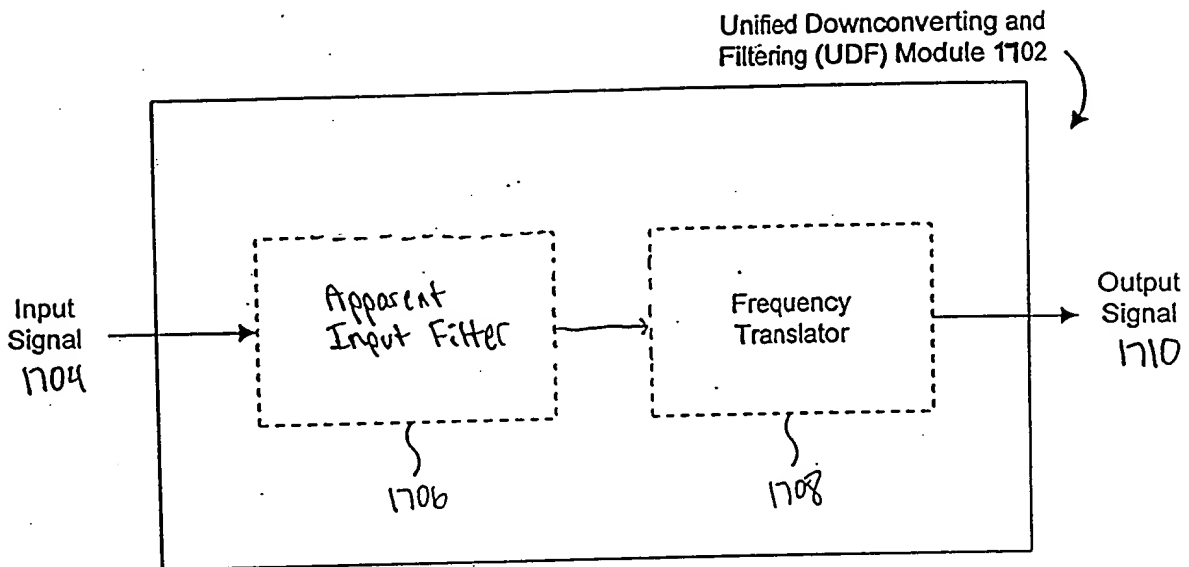


FIG. 17

1802

Time Node	t-1 (rising edge of $\phi_1$ )	t-1 (rising edge of $\phi_2$ )	t (rising edge of $\phi_1$ )	t (rising edge of $\phi_2$ )	t+1 (rising edge of $\phi_1$ )
1402	$VI_{t-1}$ <u>1804</u>	$VI_{t-1}$ <u>1808</u>	$VI_t$ <u>1816</u>	$VI_t$ <u>1826</u>	$VI_{t+1}$ <u>1838</u>
1404	—	$VI_{t-1}$ <u>1810</u>	$VI_{t-1}$ <u>1818</u>	$VI_t$ <u>1828</u>	$VI_t$ <u>1840</u>
1406	$VO_{t-1}$ <u>1806</u>	$VO_{t-1}$ <u>1812</u>	$VO_t$ <u>1820</u>	$VO_t$ <u>1830</u>	$VO_{t+1}$ <u>1842</u>
1408	—	$VO_{t-1}$ <u>1814</u>	$VO_{t-1}$ <u>1822</u>	$VO_t$ <u>1832</u>	$VO_t$ <u>1844</u>
1410	— <u>1807</u>	—	$VO_{t-1}$ <u>1824</u>	$VO_{t-1}$ <u>1834</u>	$VO_t$ <u>1846</u>
1412	—	— <u>1815</u>	—	$VO_{t-1}$ <u>1836</u>	$VO_{t-1}$ <u>1848</u>
1418	—	—	—	—	$VI_t -$ <u>1850</u> $0.1 * VO_t -$ $0.8 * VO_{t-1}$

FIG. 18

VDF Module 1922  
(band pass)

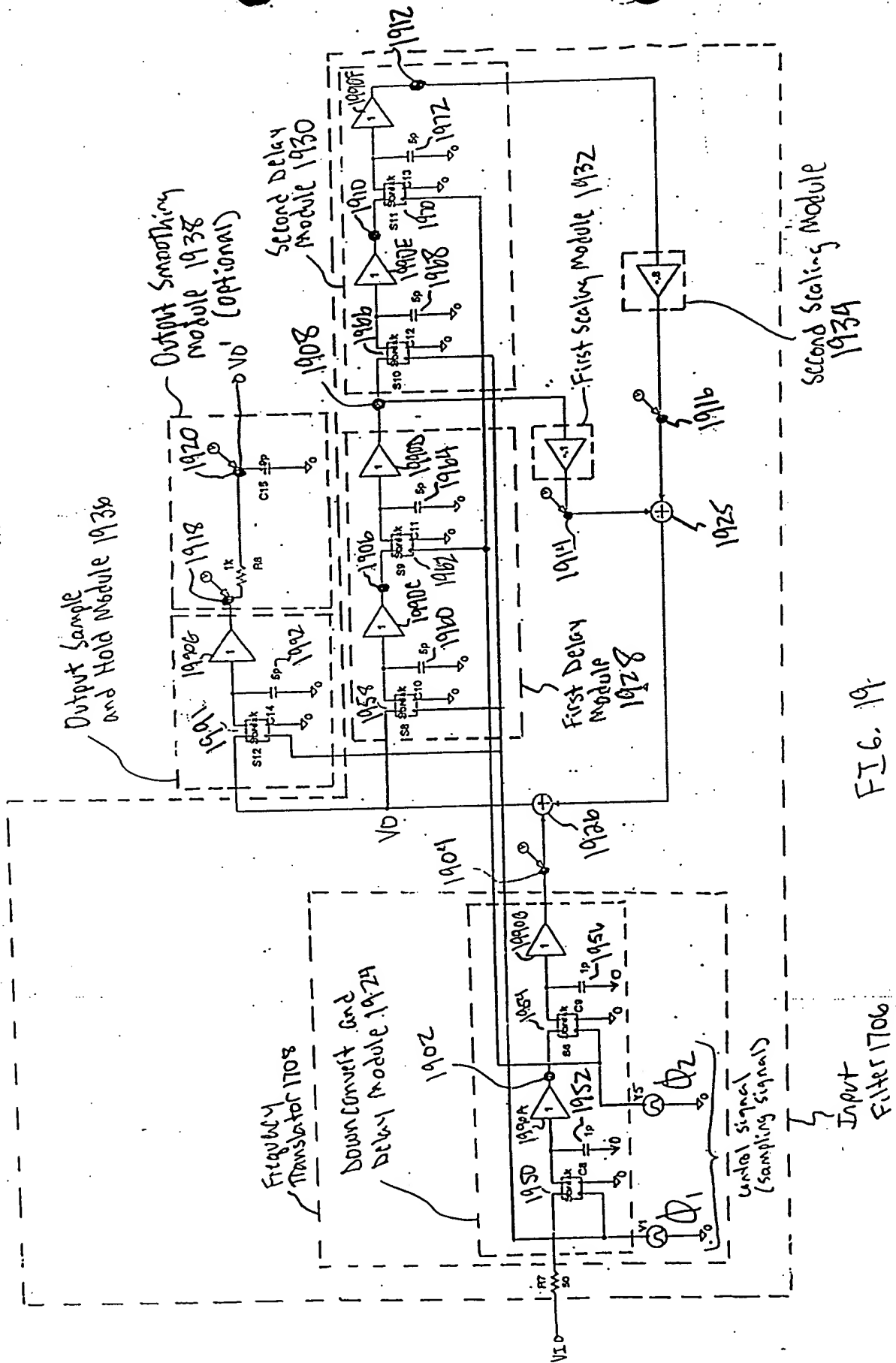


FIG. 19

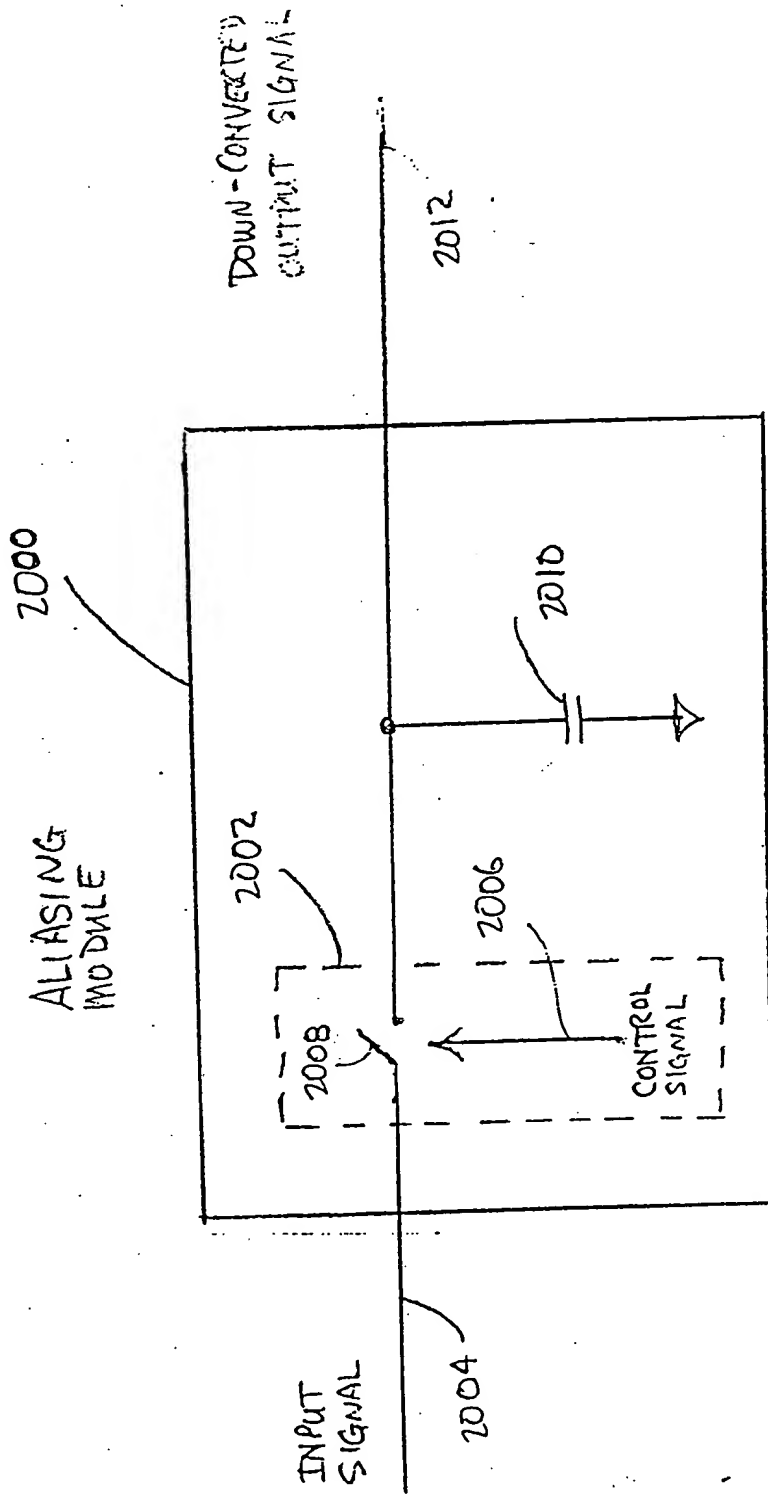


FIG. 20A

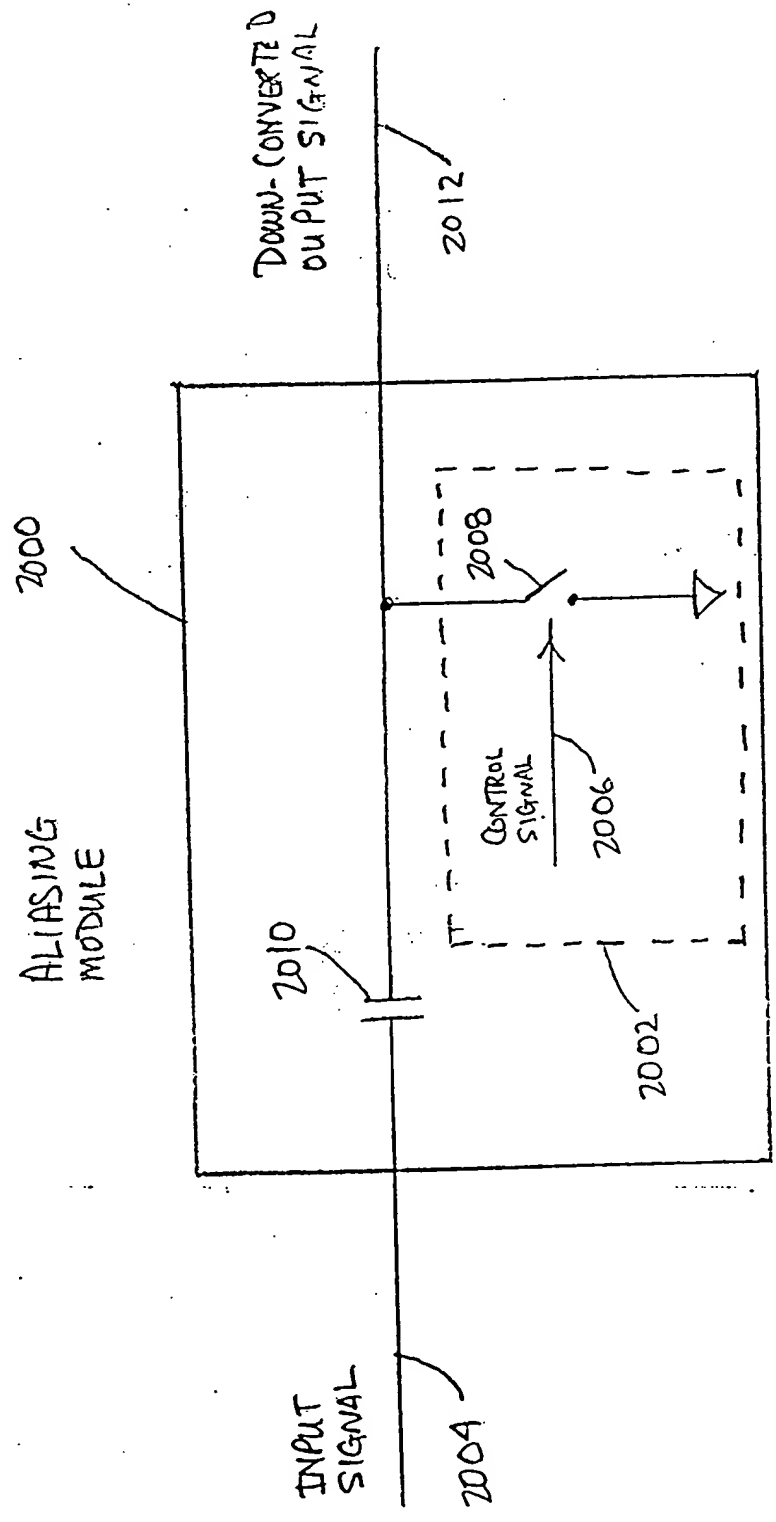


FIG. 20A-1



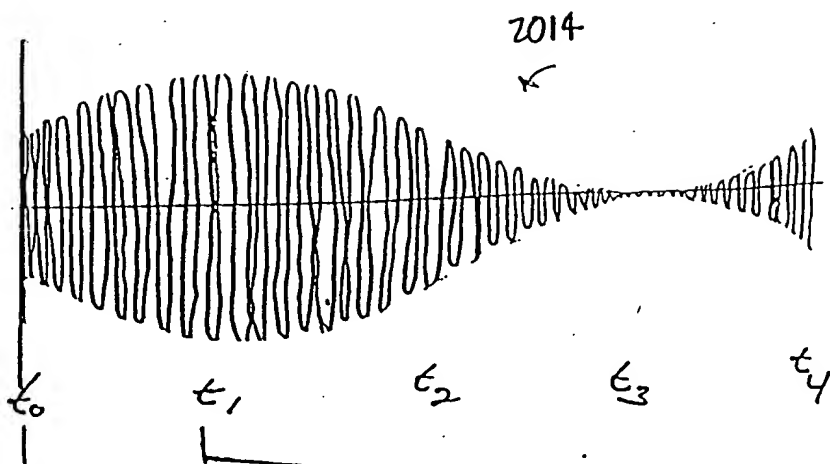


FIG. 20B

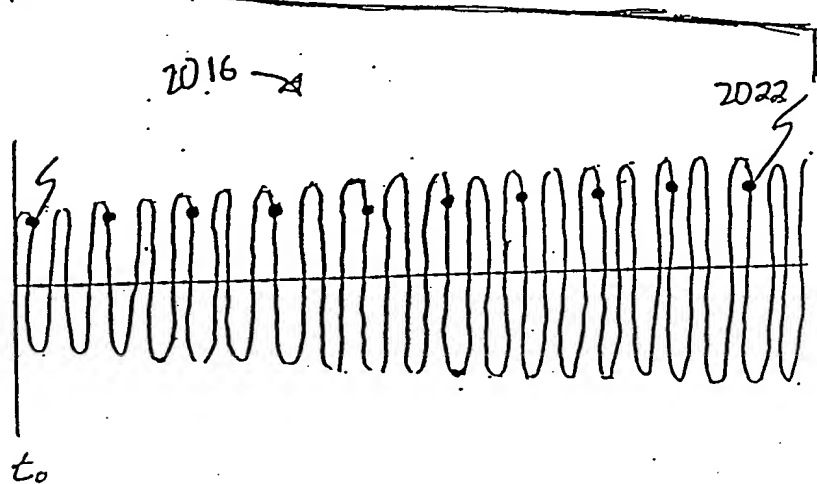


FIG. 20C

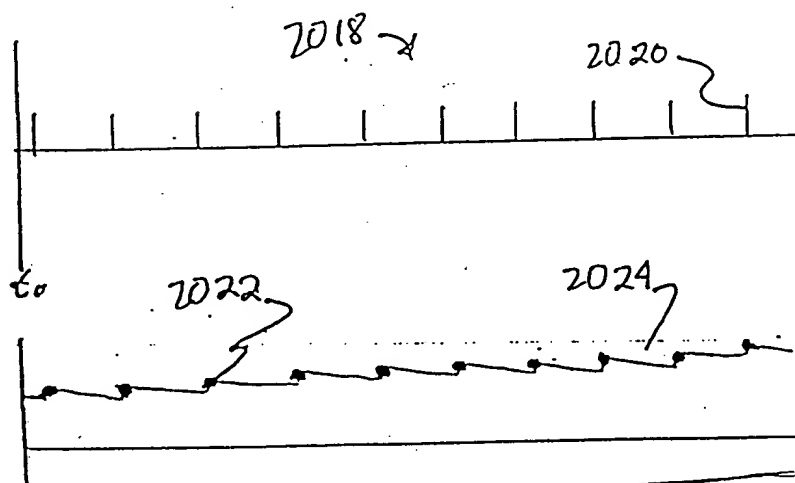


FIG. 20D

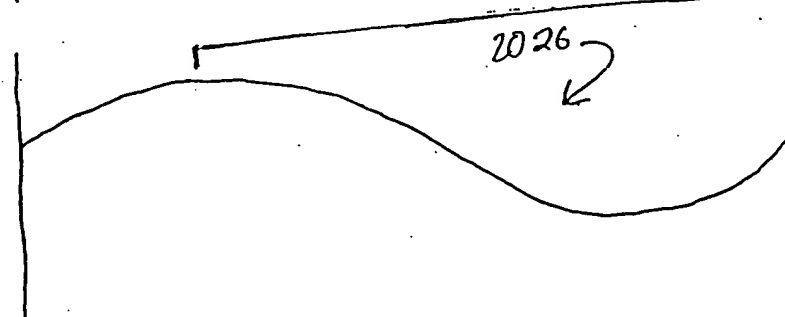


FIG. 20E

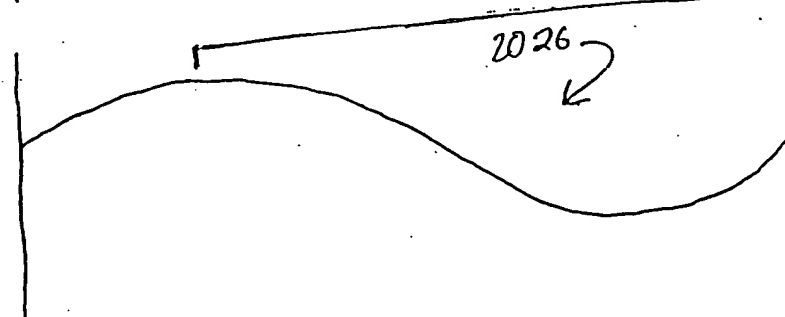


FIG. 20F

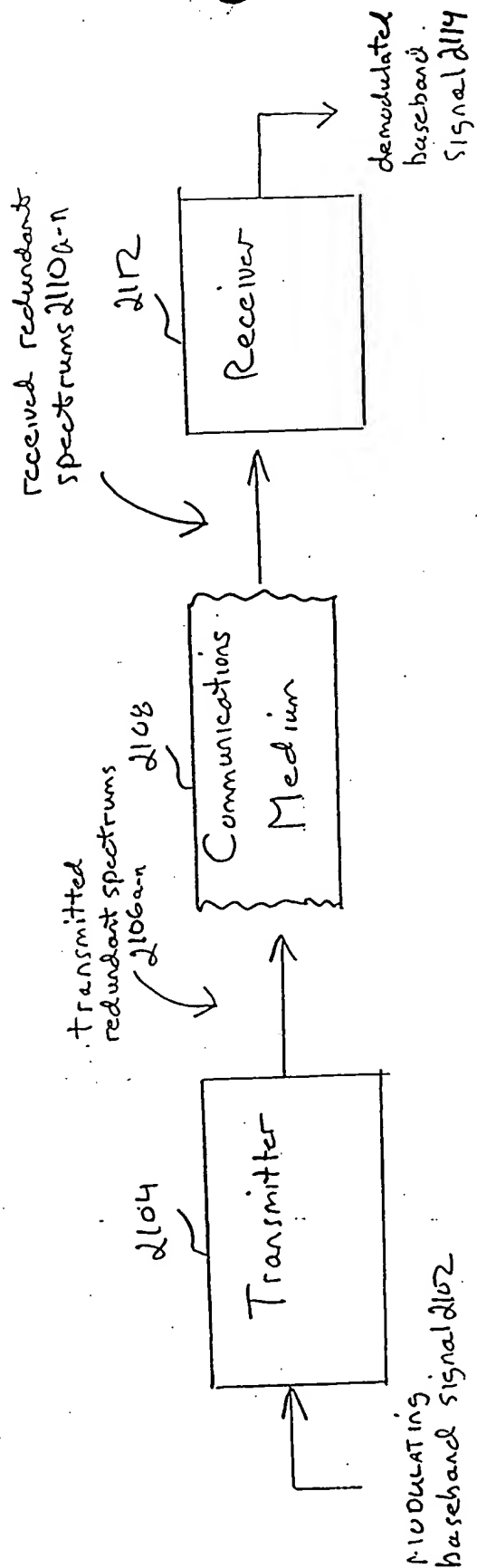
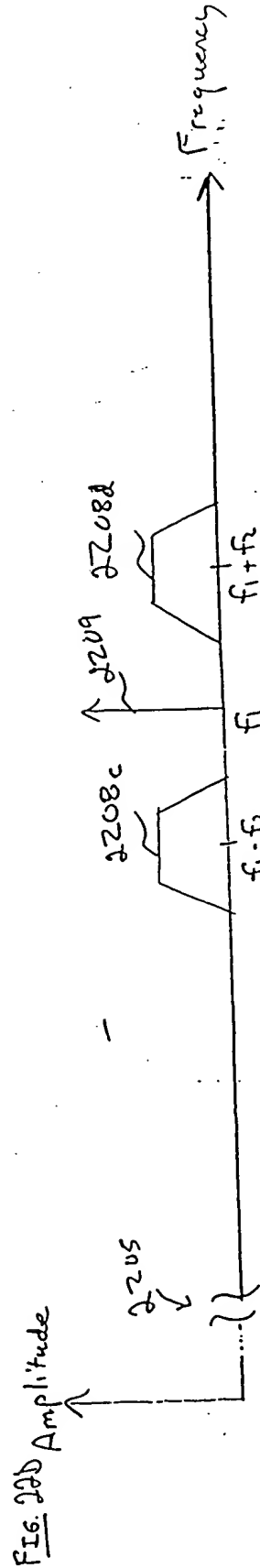
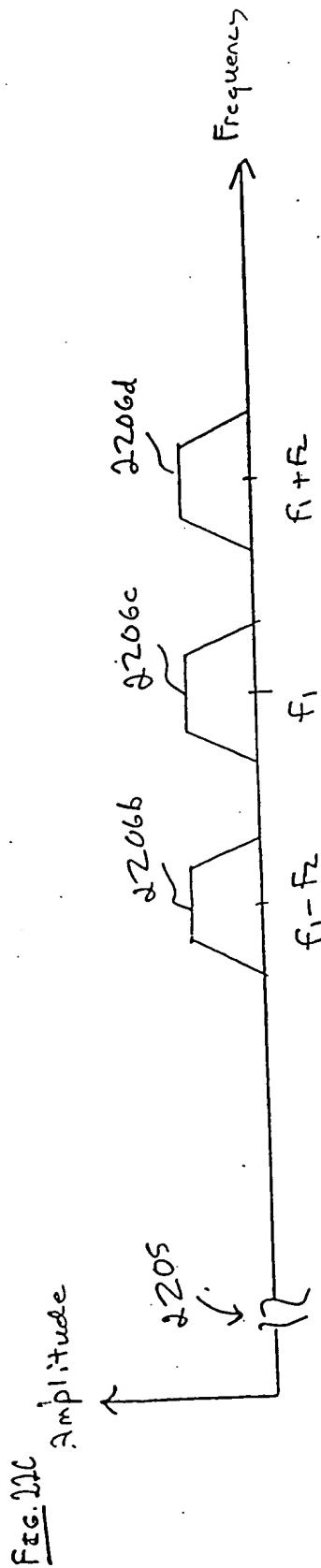
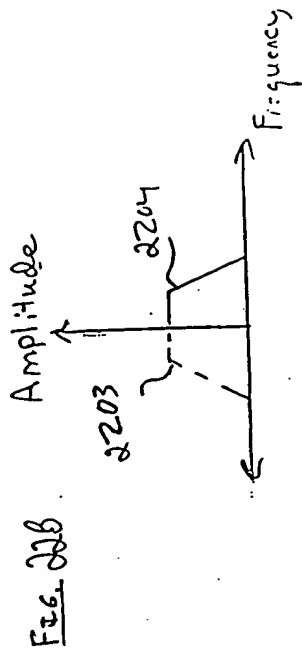
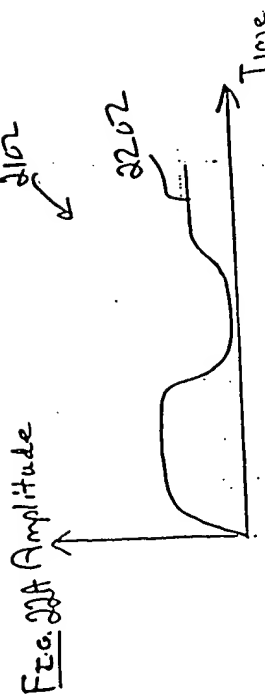
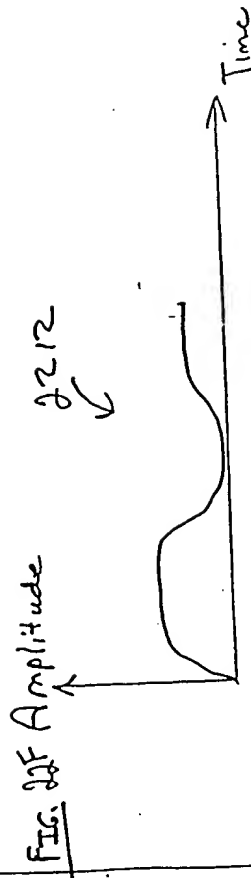
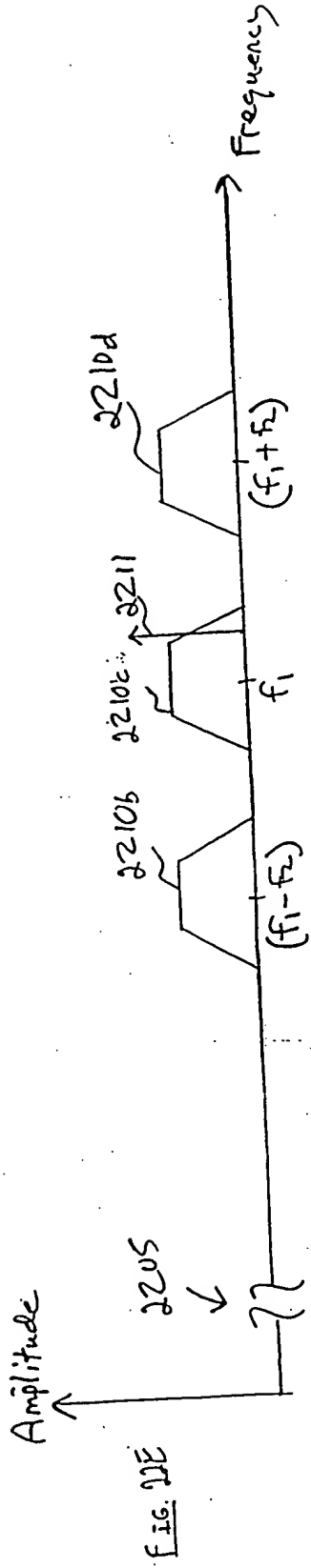


Fig. 21





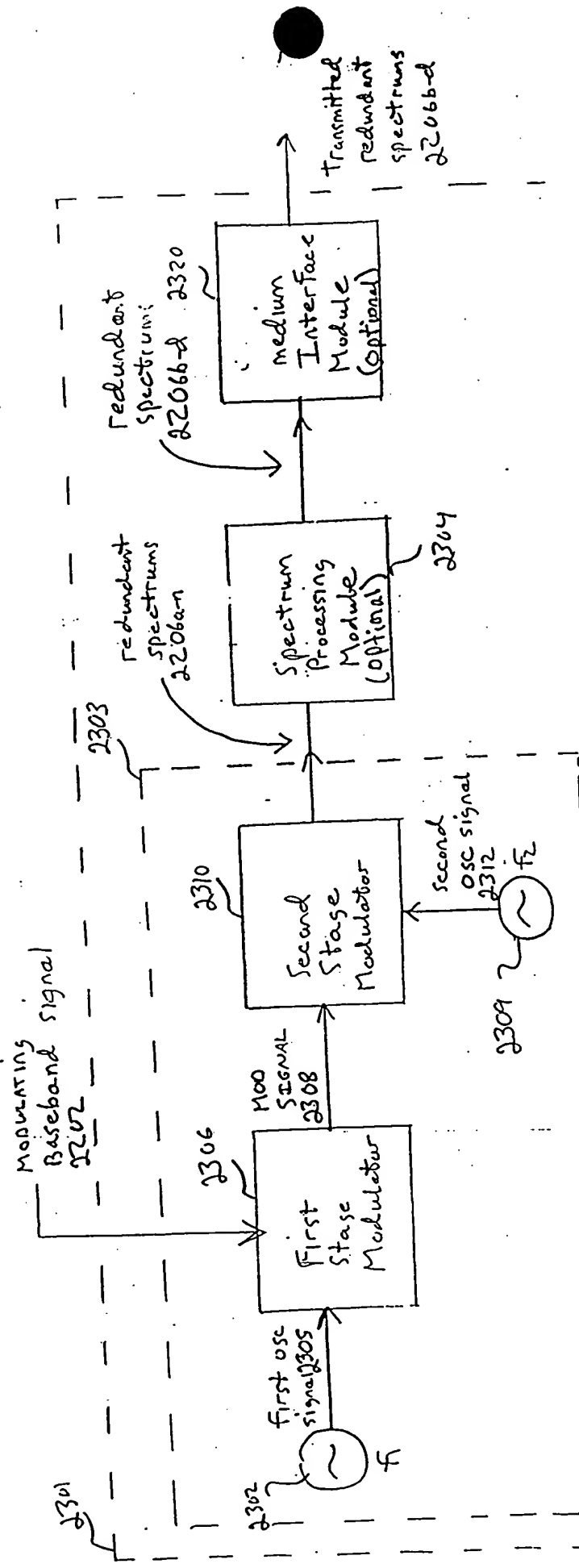
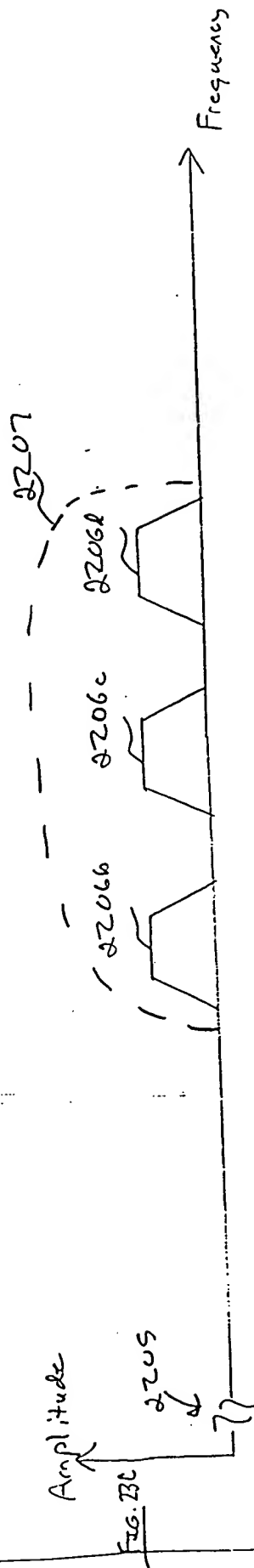
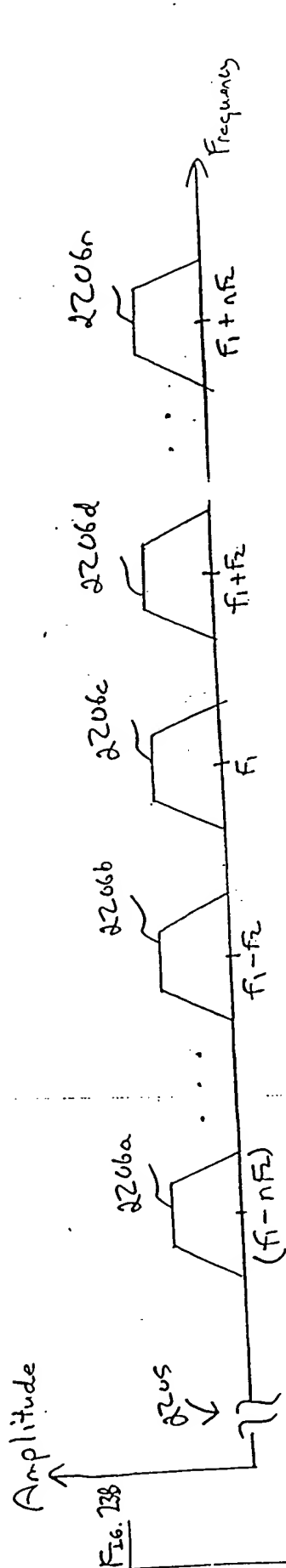


FIG. 23A



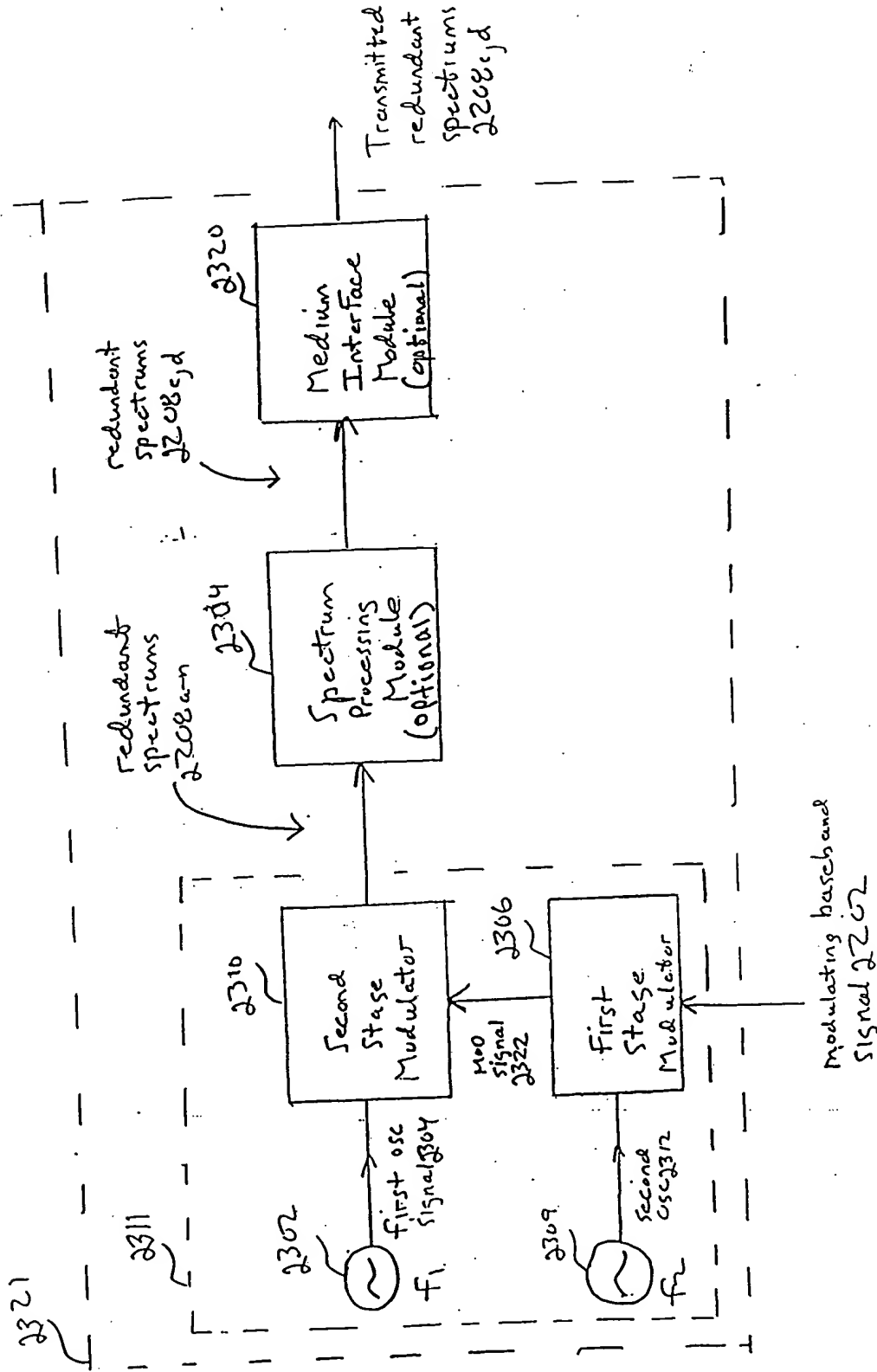


FIG. 23D

FIG. 23E

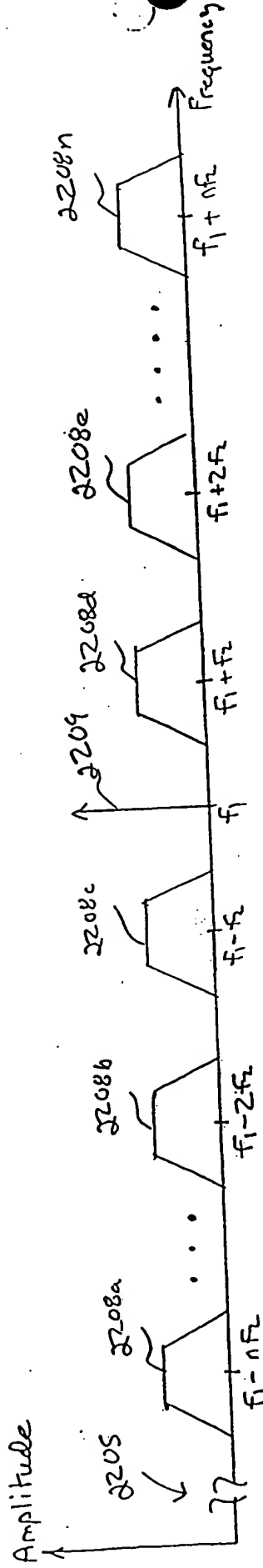
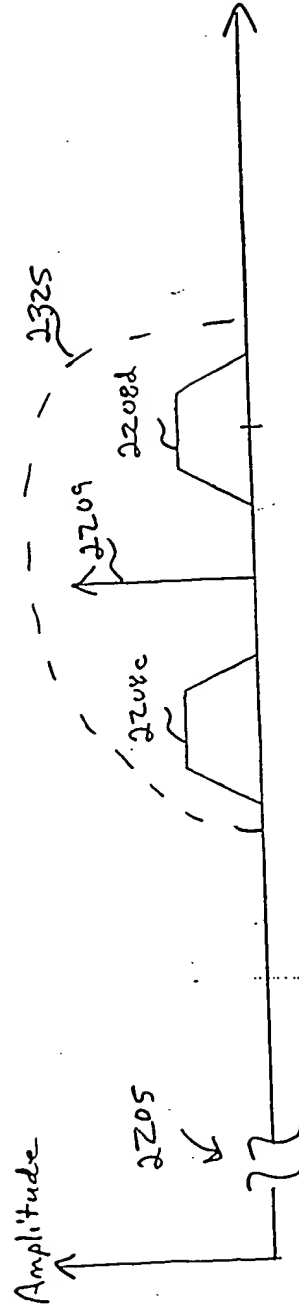


FIG. 23F





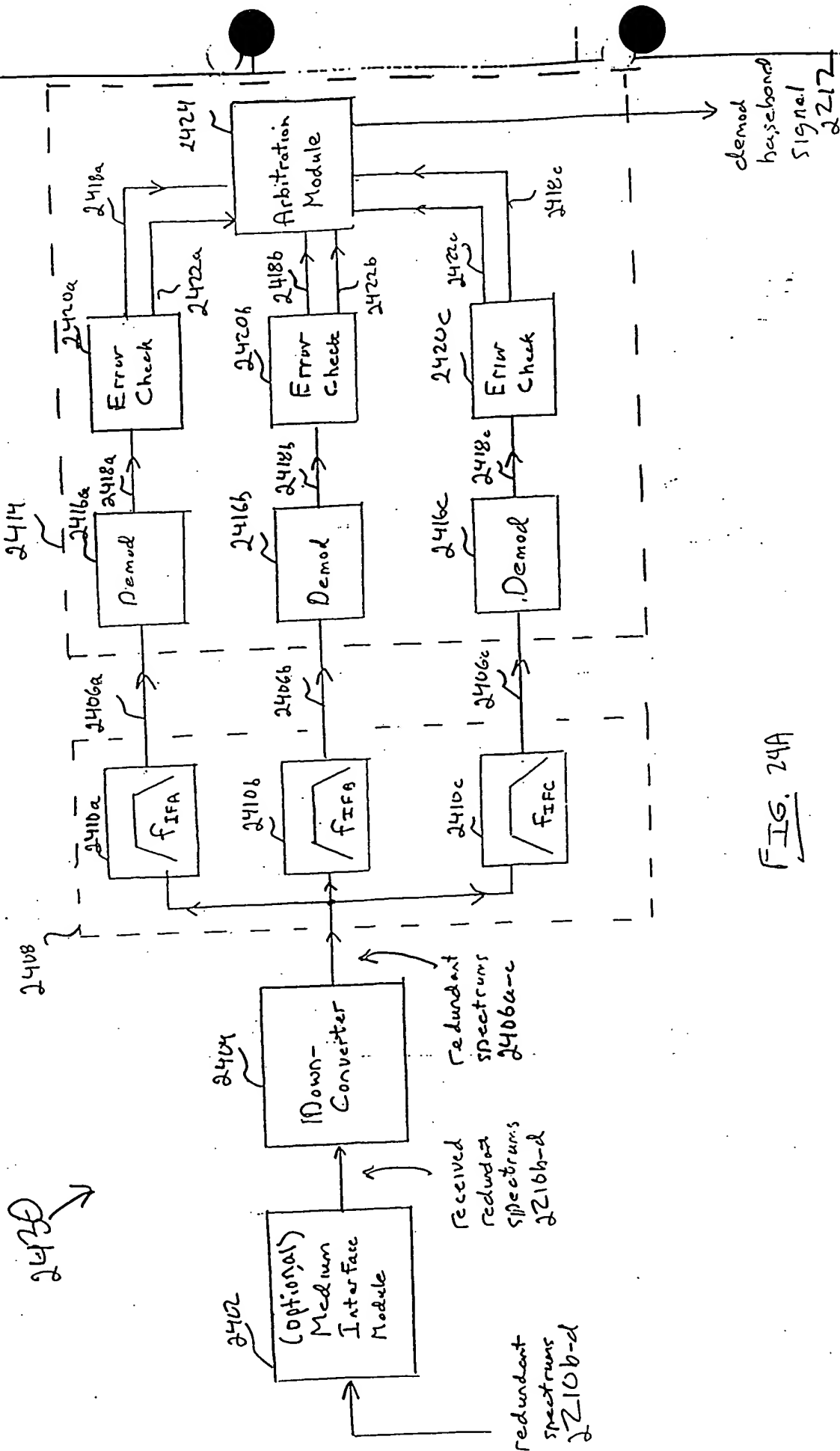
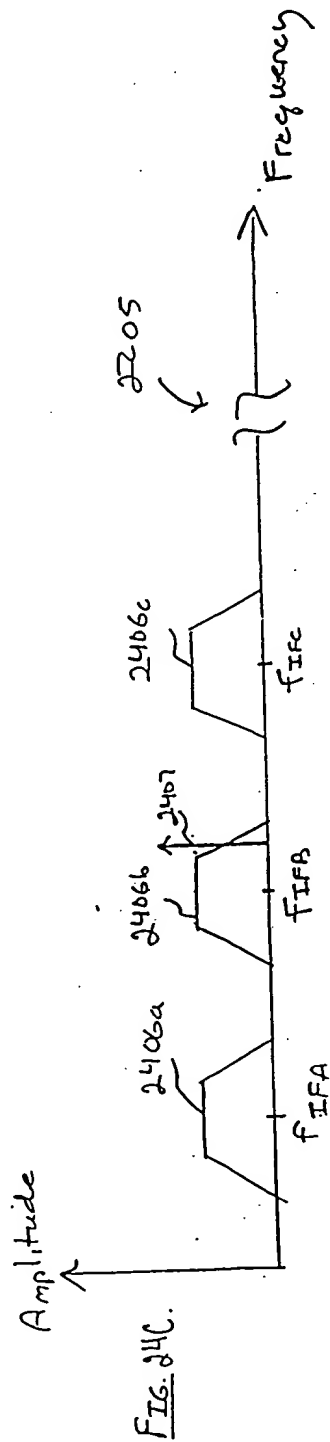
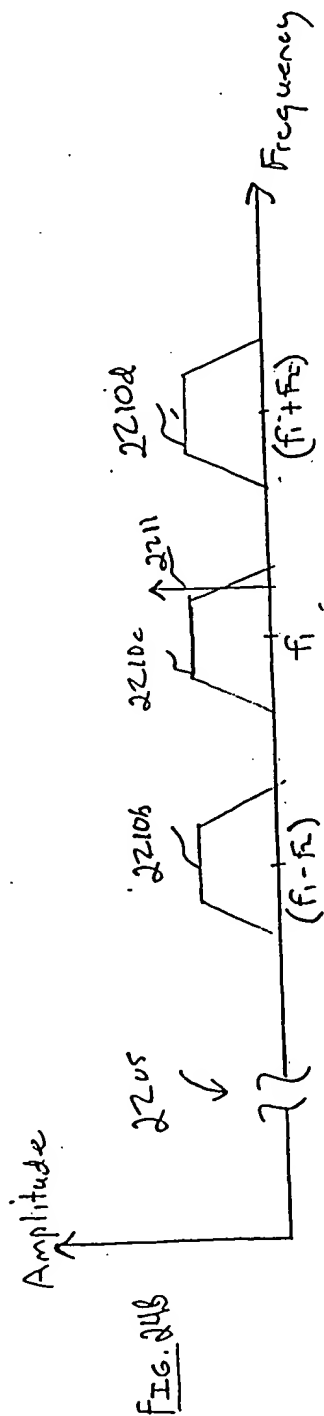
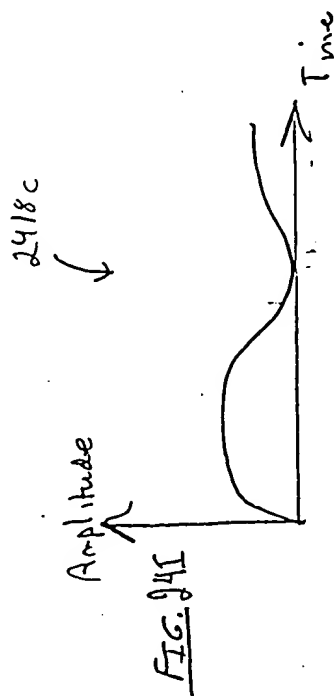
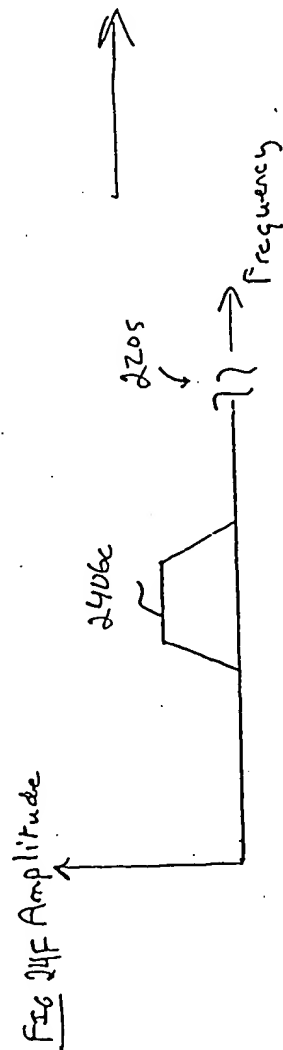
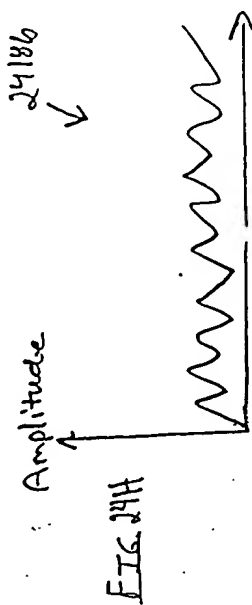
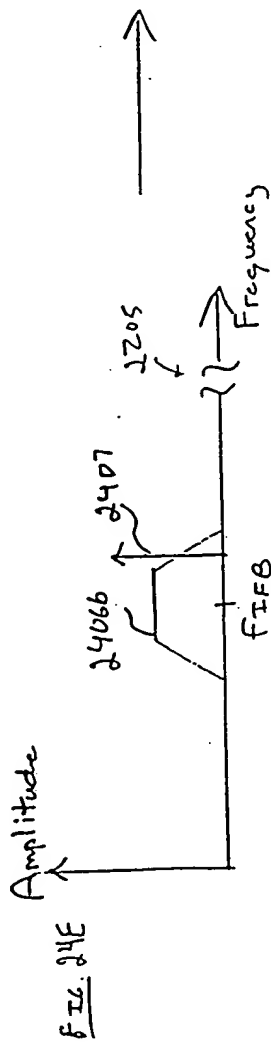
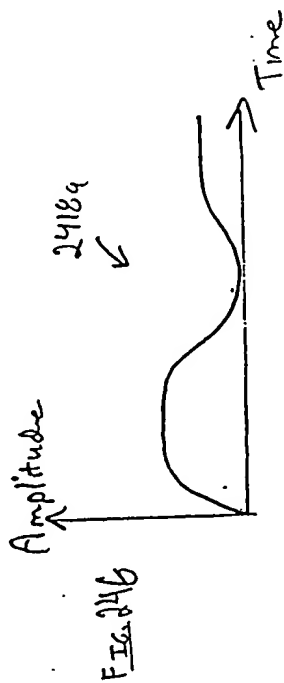
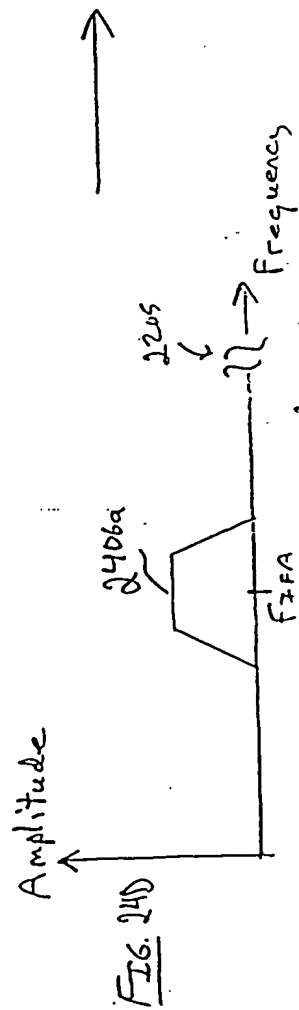


FIG. 24A





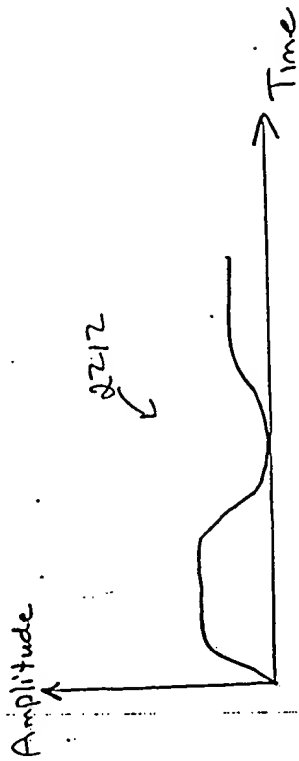


FIG. 245

43381 100% RECYCLED PAPER  
43382 100% RECYCLED PAPER  
43383 100% RECYCLED PAPER  
43384 100% RECYCLED PAPER  
43385 100% RECYCLED PAPER  
43386 100% RECYCLED PAPER  
43387 100% RECYCLED PAPER  
43388 100% RECYCLED PAPER  
43389 100% RECYCLED PAPER  
43390 100% RECYCLED PAPER  
43391 100% RECYCLED PAPER  
43392 100% RECYCLED PAPER  
43393 100% RECYCLED PAPER  
43394 100% RECYCLED PAPER  
43395 100% RECYCLED PAPER  
43396 100% RECYCLED PAPER  
43397 100% RECYCLED PAPER  
43398 100% RECYCLED PAPER  
43399 100% RECYCLED PAPER  
43400 100% RECYCLED PAPER

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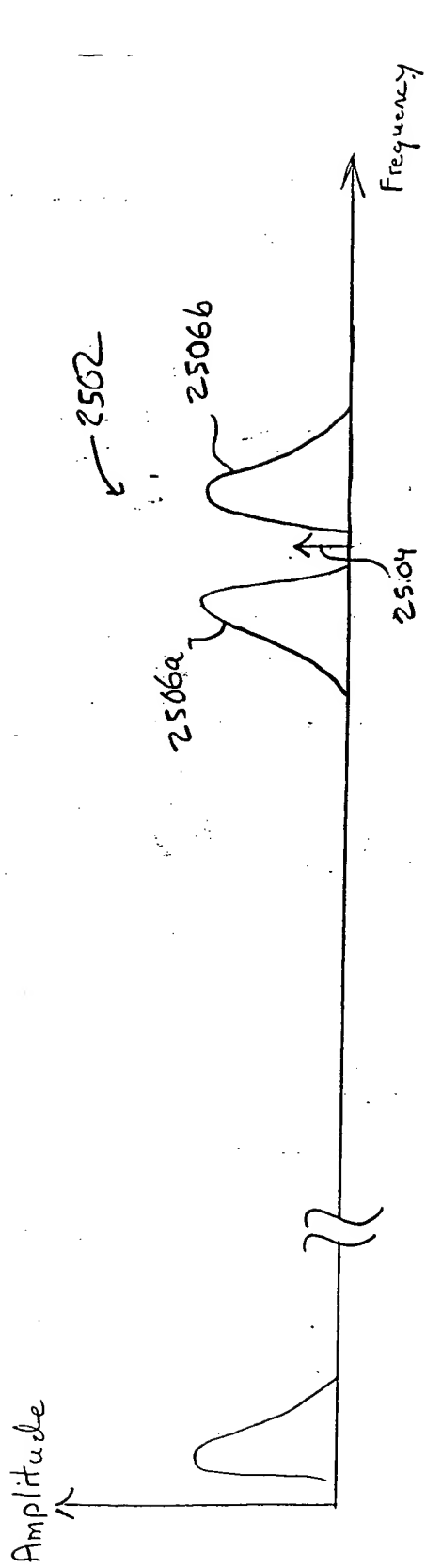
[illegible]

FIG. 25A

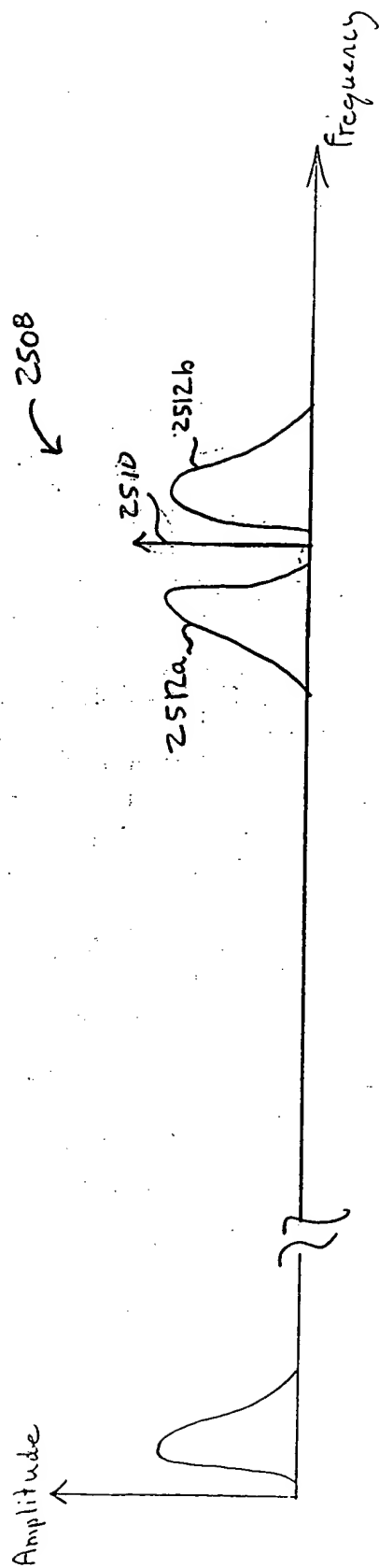


Fig. 25B

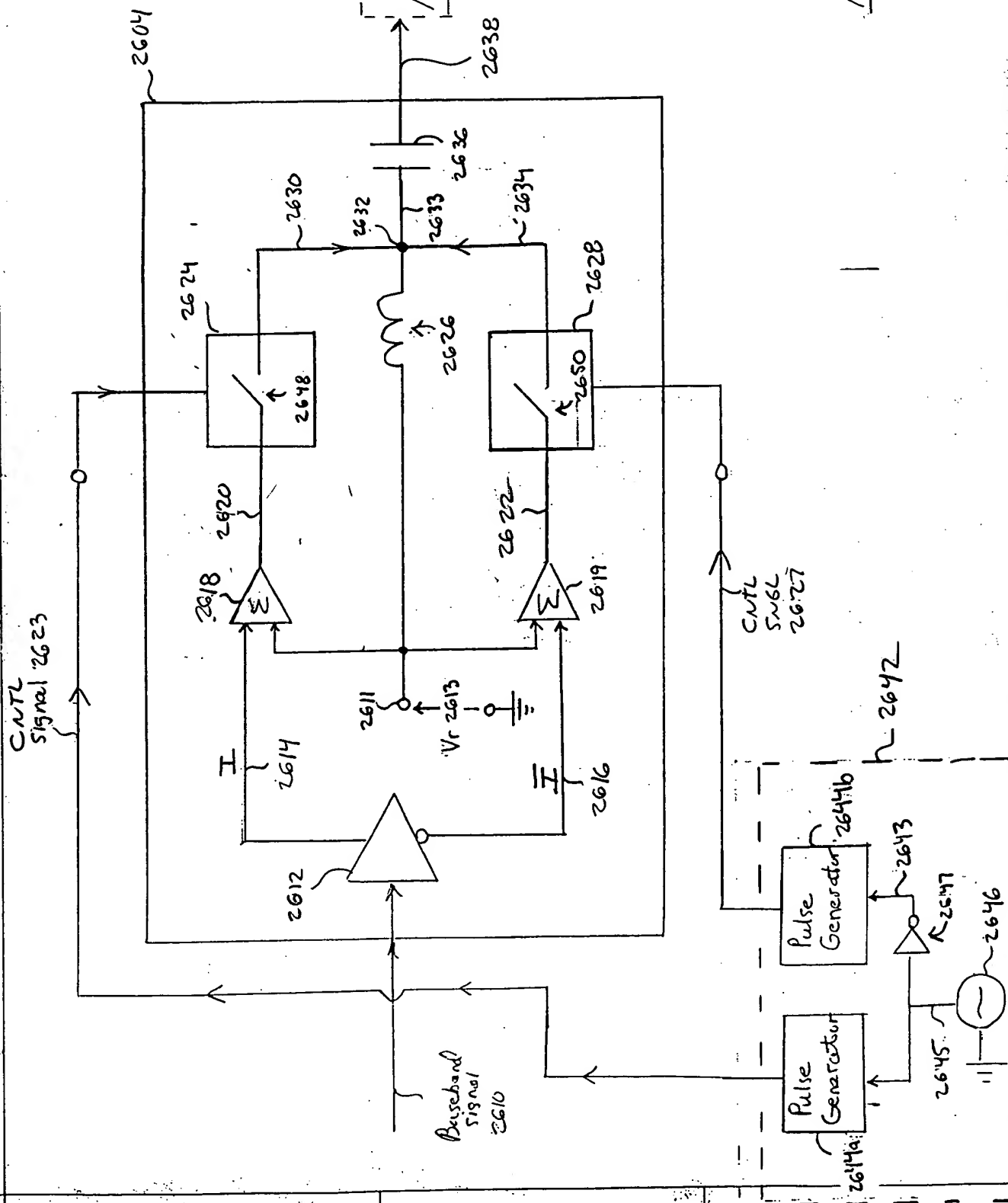


FIG. 26A

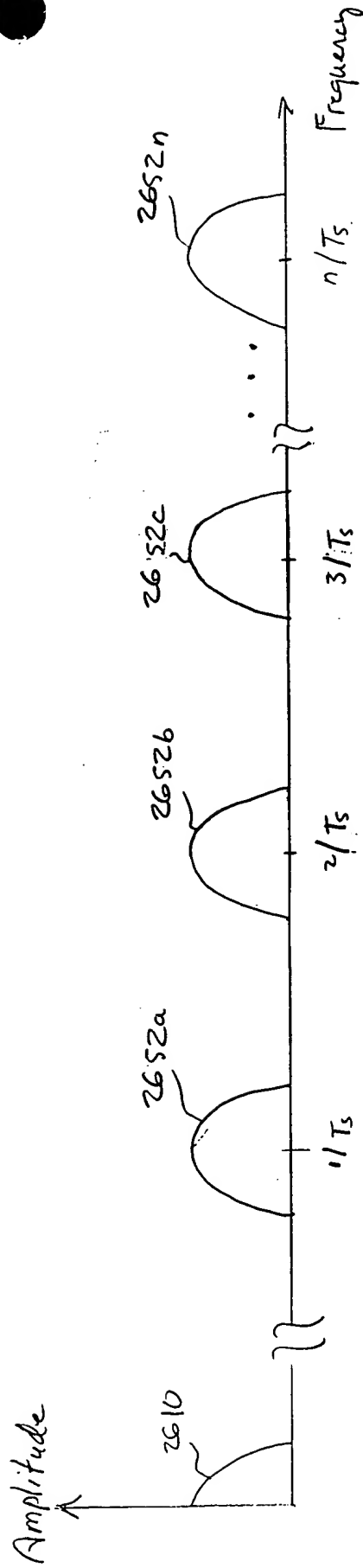


FIG. 26/3





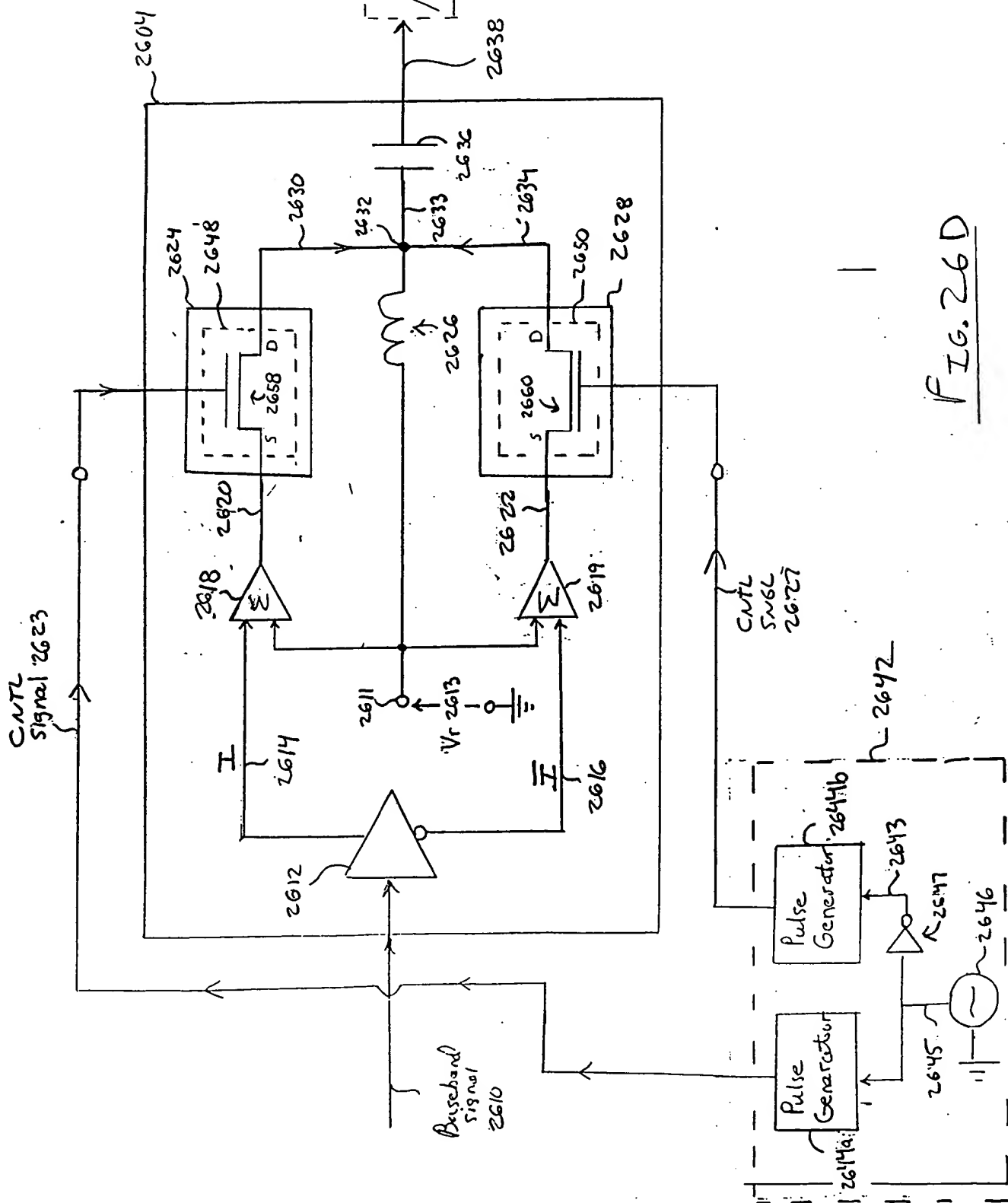
[illegible]

FIG. 26D

FIG. 27A

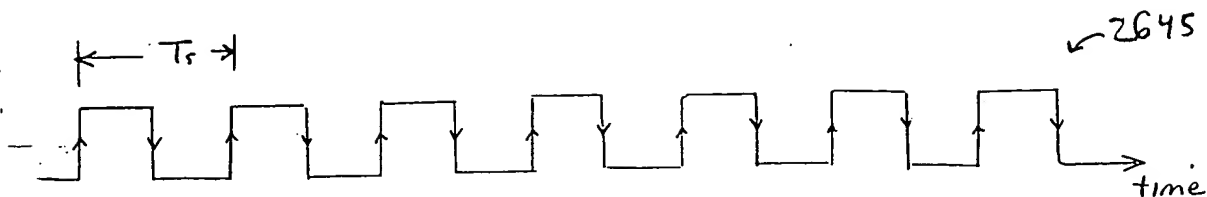


FIG. 27B

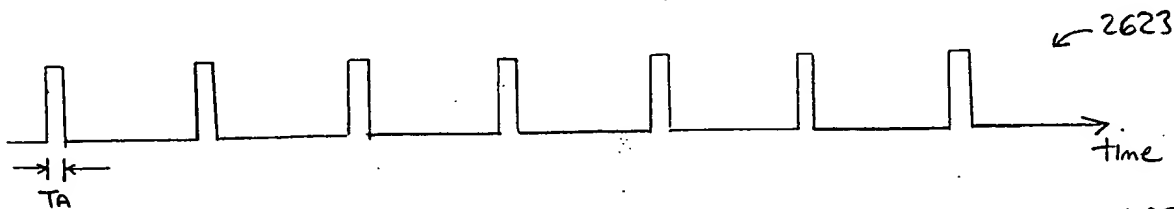


FIG. 27C

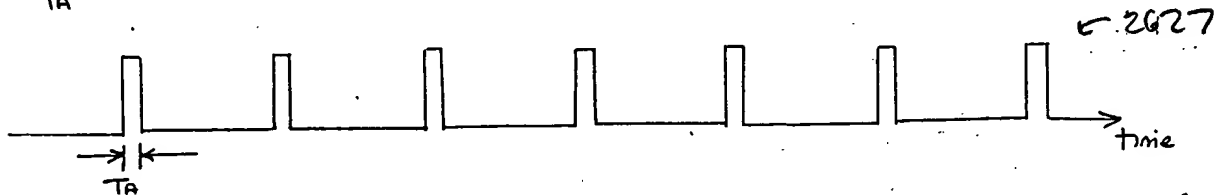


FIG. 27D

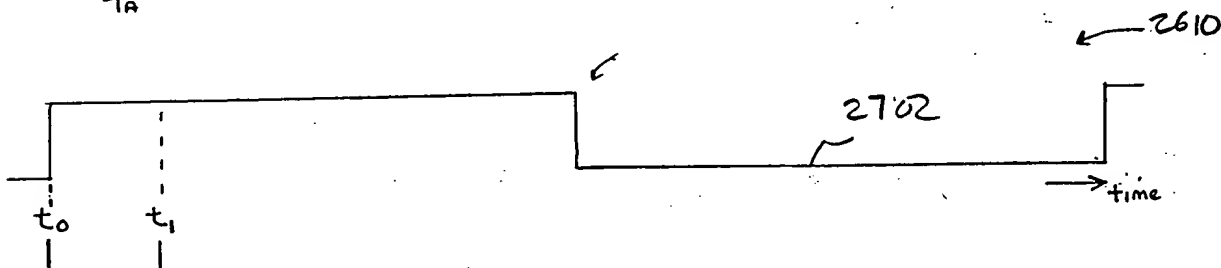


FIG. 27E

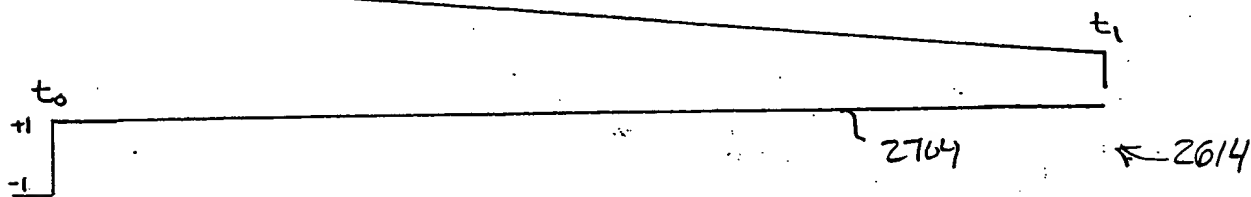


FIG. 27F

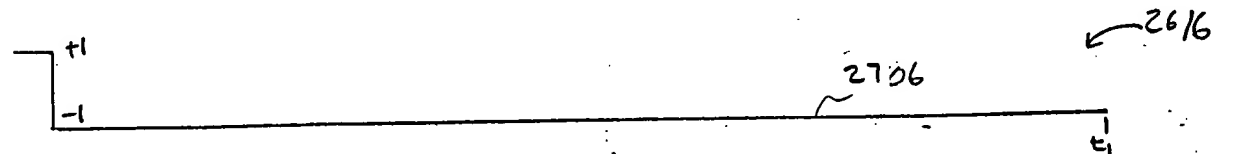


FIG. 27G



FIG. 27H

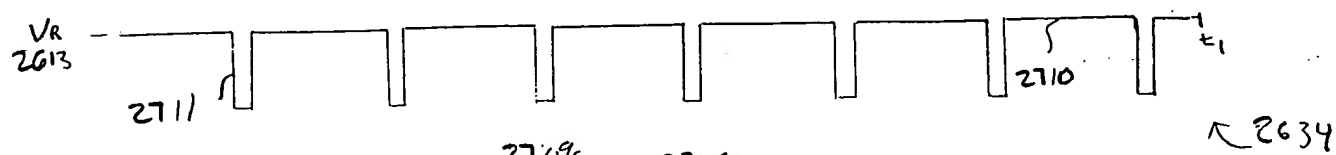
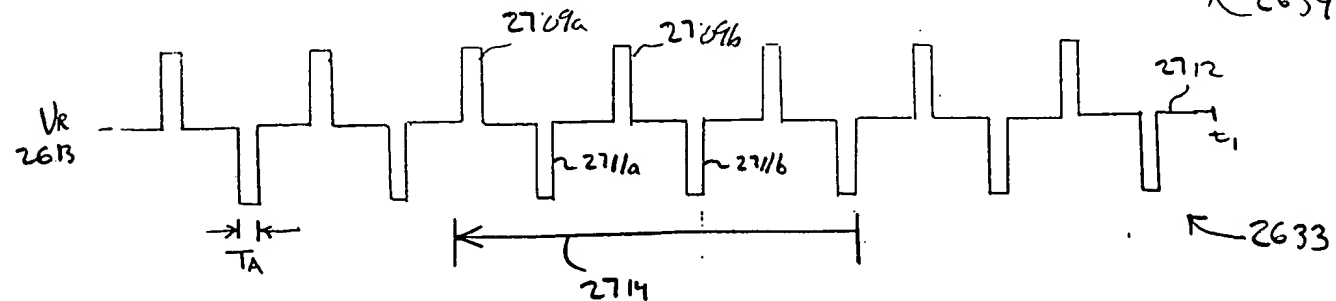


FIG. 27I



Aperture = 500ps  
 Fundamental Clock = 200Mhz (5<sup>th</sup> Subharmonic)  
 Square Wave Frequency = 200Mhz

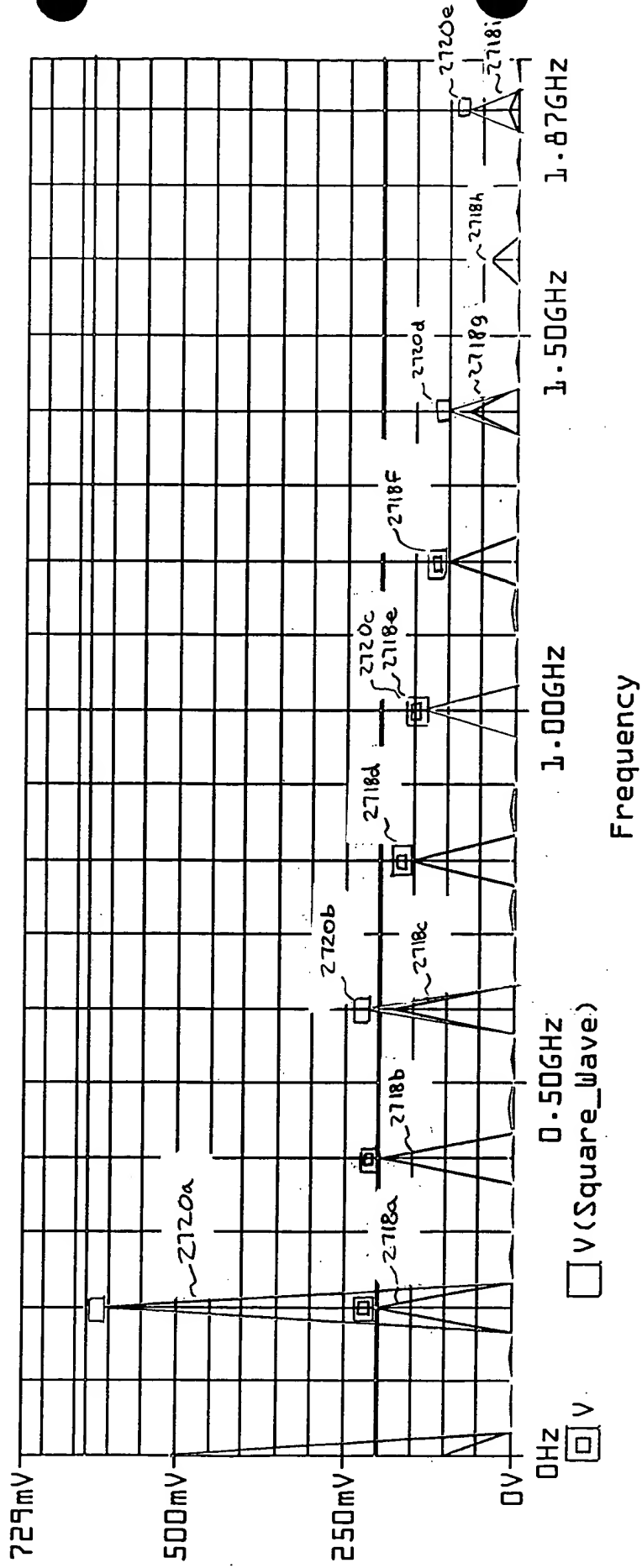
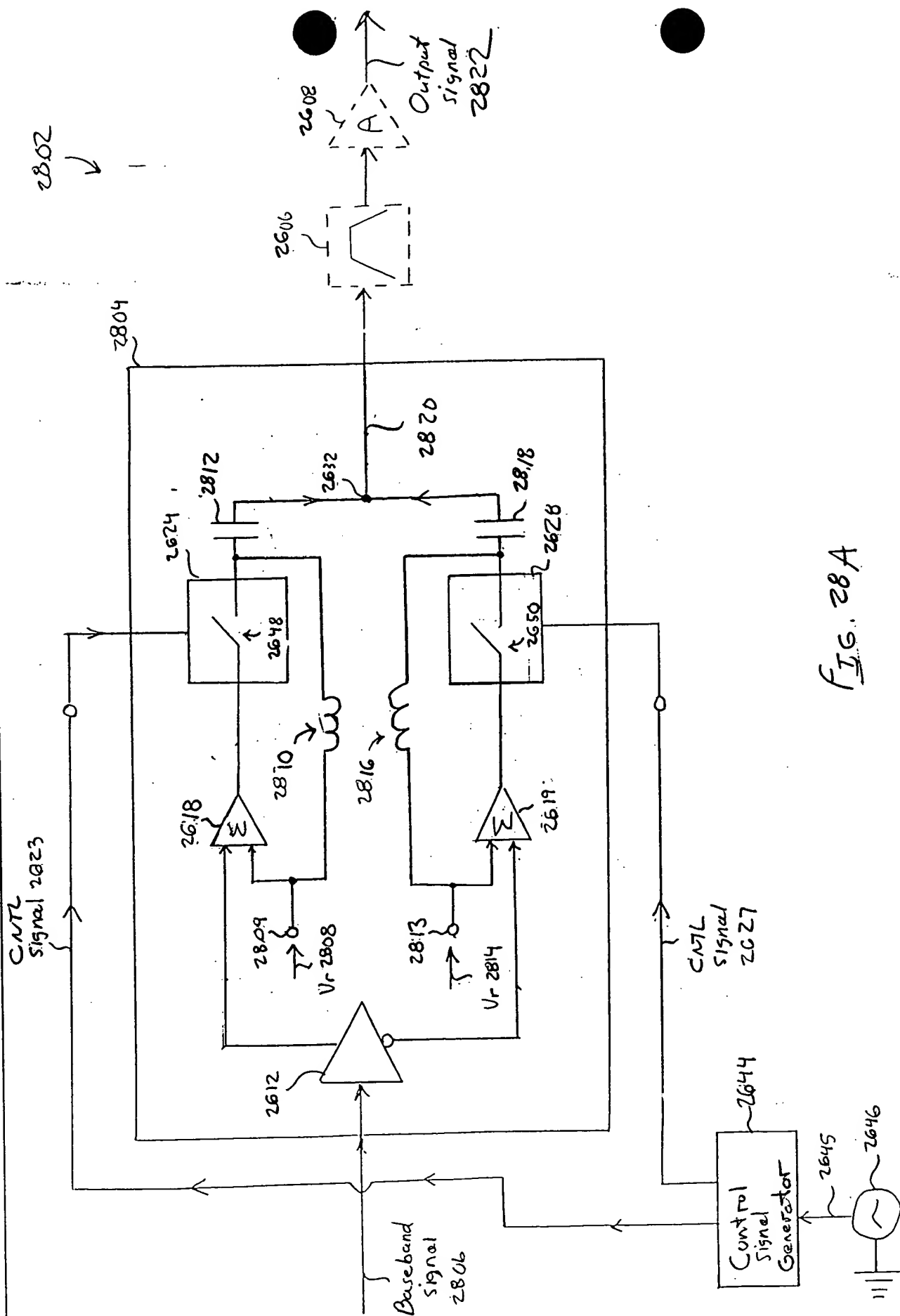
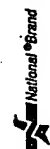


FIG. 27J



13-782 500 SHEETS, FILLER 5 SQUARE  
 43-381 500 SHEETS, FILLER 5 SQUARE  
 43-382 500 SHEETS, FILLER 5 SQUARE  
 43-383 500 SHEETS, FILLER 5 SQUARE  
 43-384 500 SHEETS, FILLER 5 SQUARE  
 43-385 500 SHEETS, FILLER 5 SQUARE  
 43-386 500 SHEETS, FILLER 5 SQUARE  
 43-387 500 SHEETS, FILLER 5 SQUARE  
 43-388 500 SHEETS, FILLER 5 SQUARE  
 43-389 500 SHEETS, FILLER 5 SQUARE  
 43-390 500 SHEETS, FILLER 5 SQUARE  
 43-391 500 SHEETS, FILLER 5 SQUARE  
 43-392 500 SHEETS, FILLER 5 SQUARE  
 43-393 500 SHEETS, FILLER 5 SQUARE  
 43-394 500 SHEETS, FILLER 5 SQUARE  
 43-395 500 SHEETS, FILLER 5 SQUARE  
 43-396 500 SHEETS, FILLER 5 SQUARE  
 43-397 500 SHEETS, FILLER 5 SQUARE  
 43-398 500 SHEETS, FILLER 5 SQUARE  
 43-399 500 SHEETS, FILLER 5 SQUARE  
 43-400 500 SHEETS, FILLER 5 SQUARE  
 Made in U.S.A.



Amplitude

2820

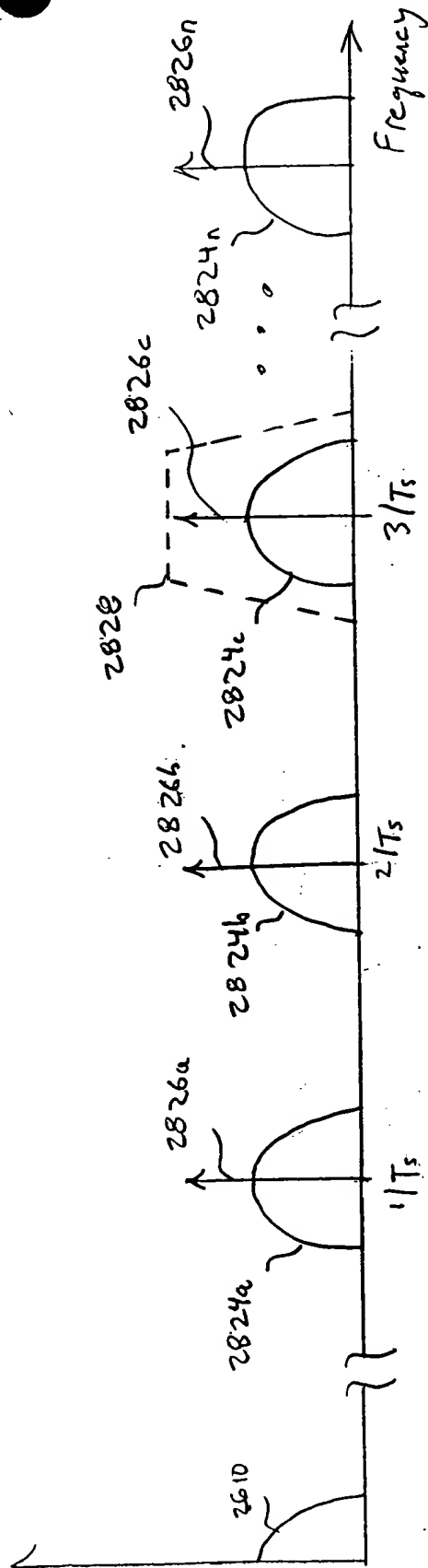


FIG. 28B

2920

2910

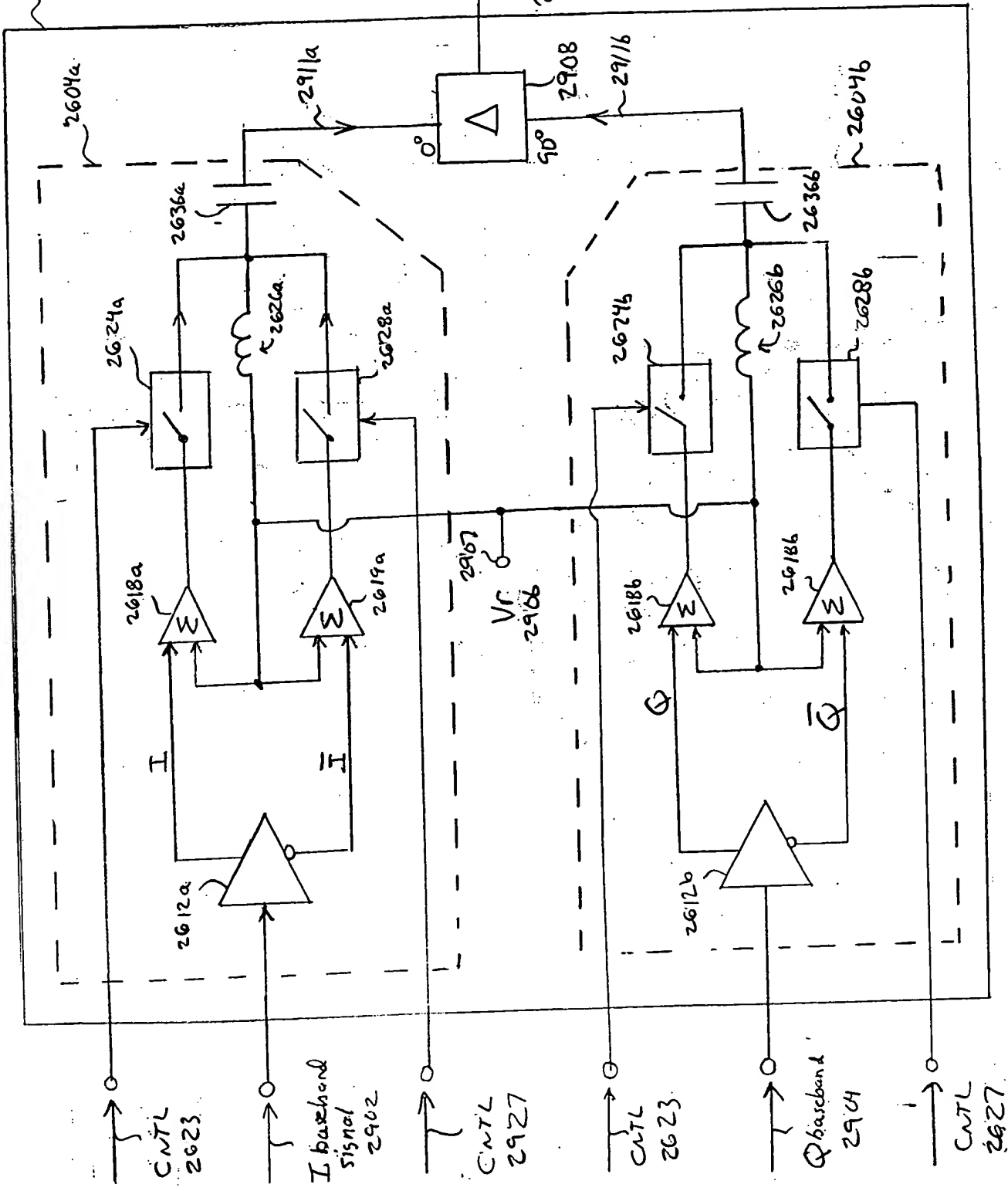


FIG. 29



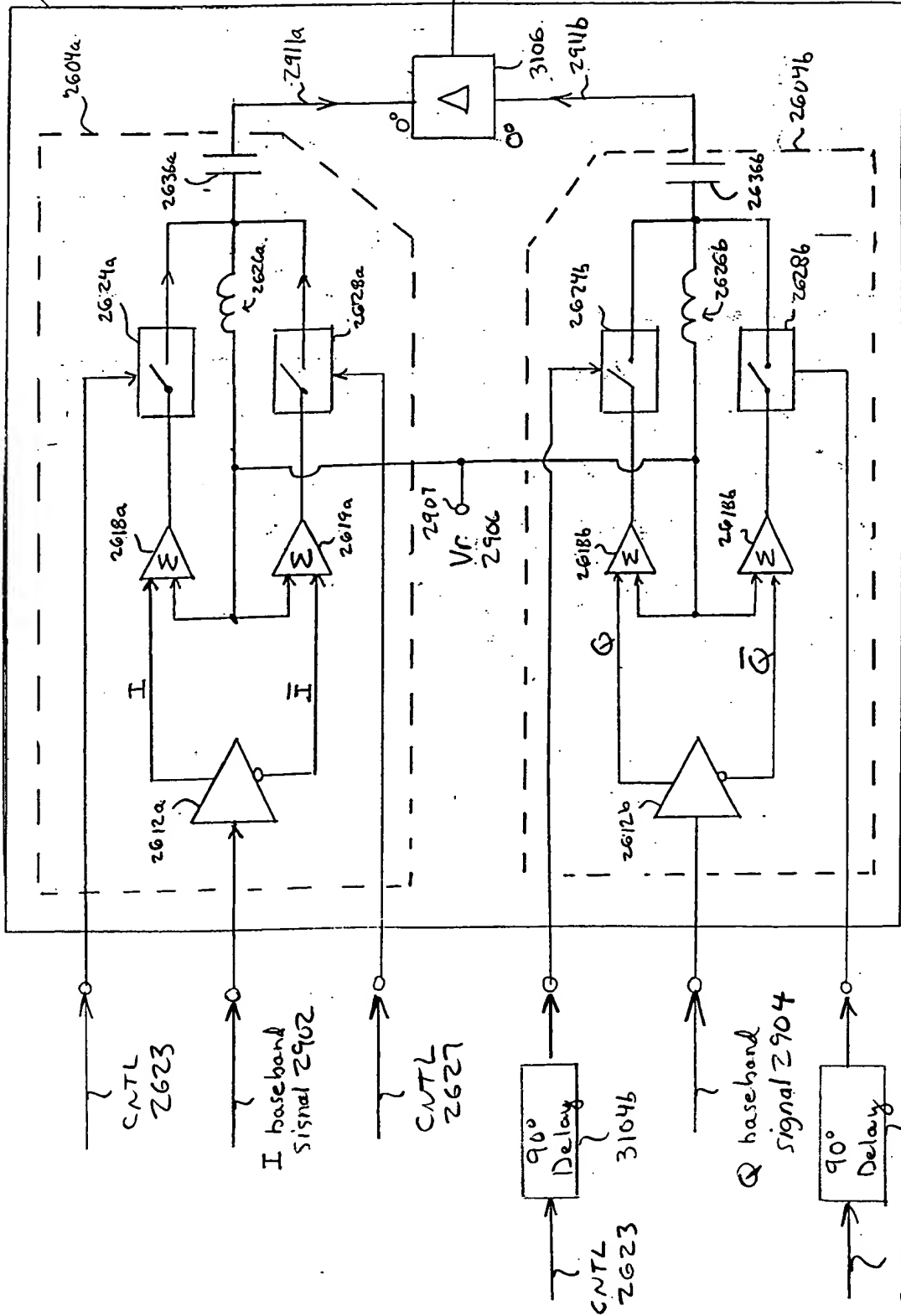


FIG. 31A



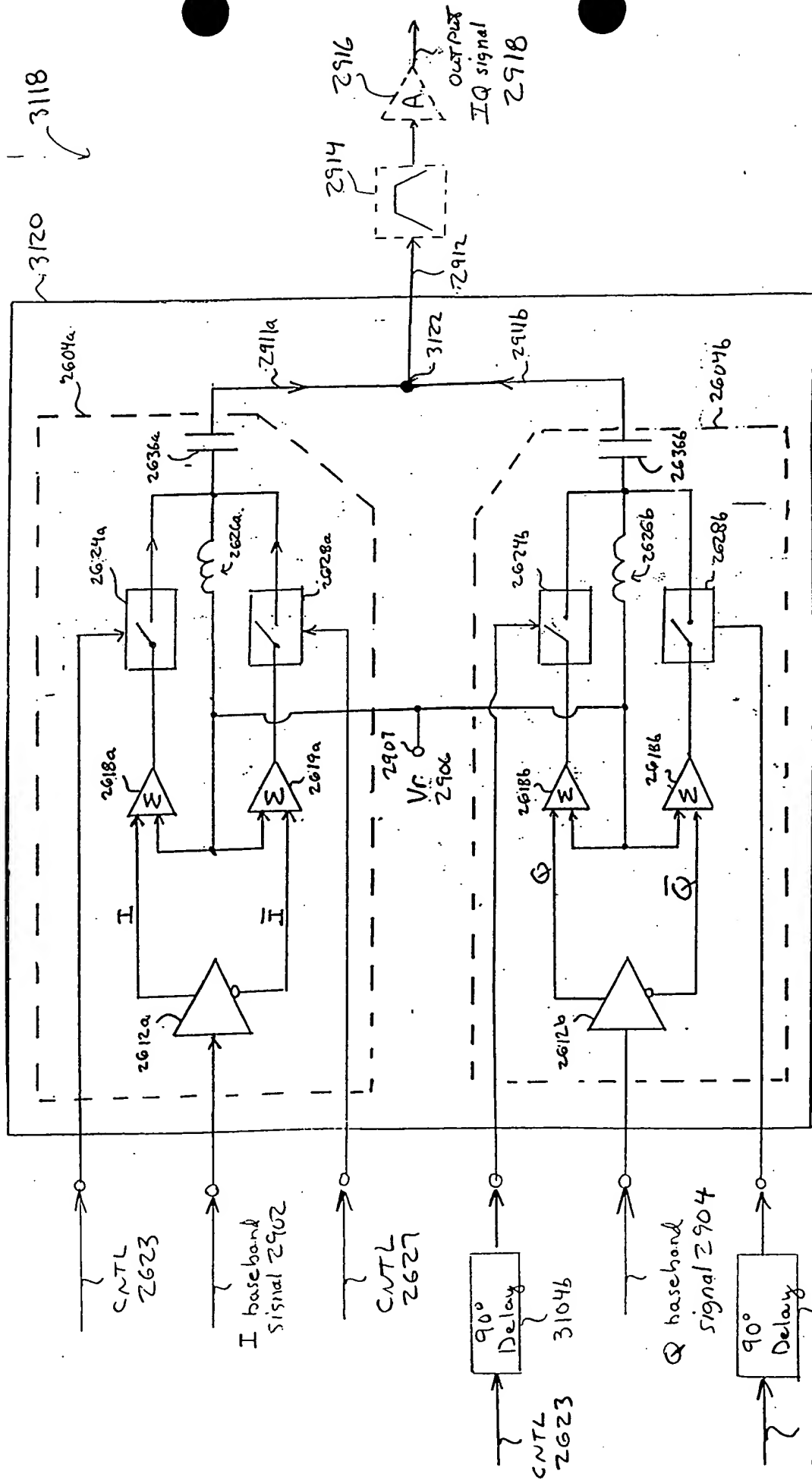


FIG. 31B

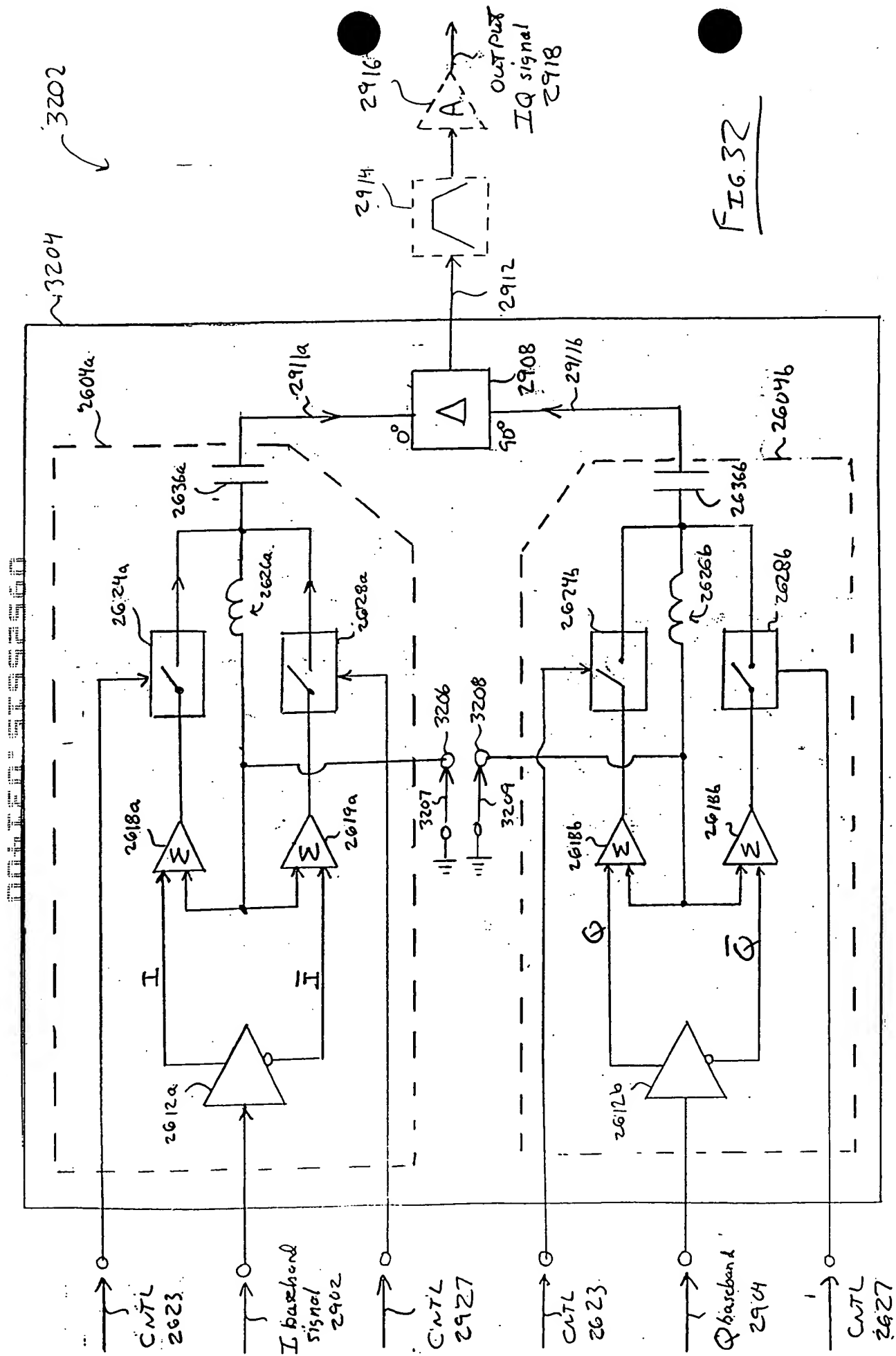


FIG. 32

3302

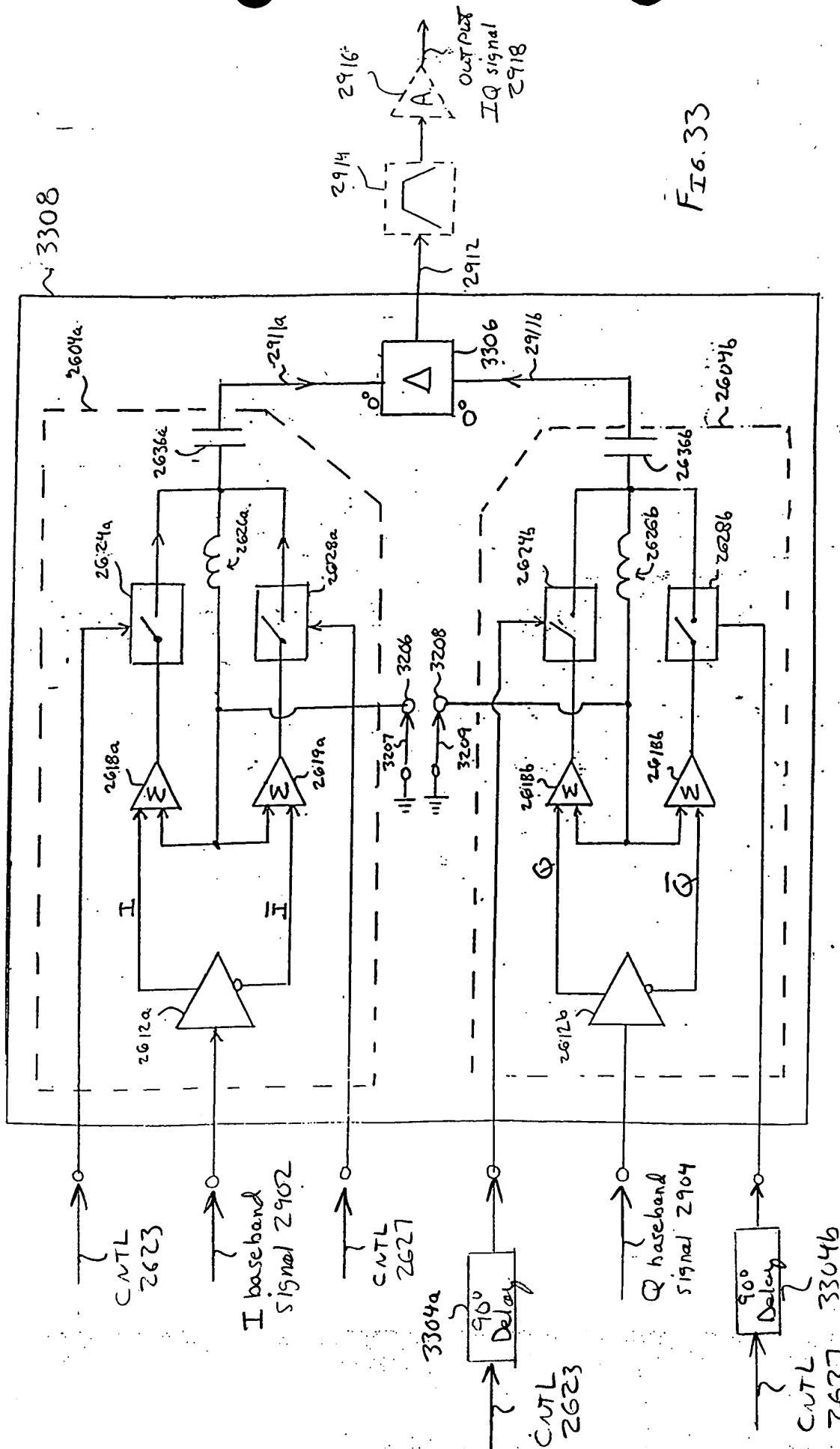


FIG. 33

U.S. Pat. 3,335,560

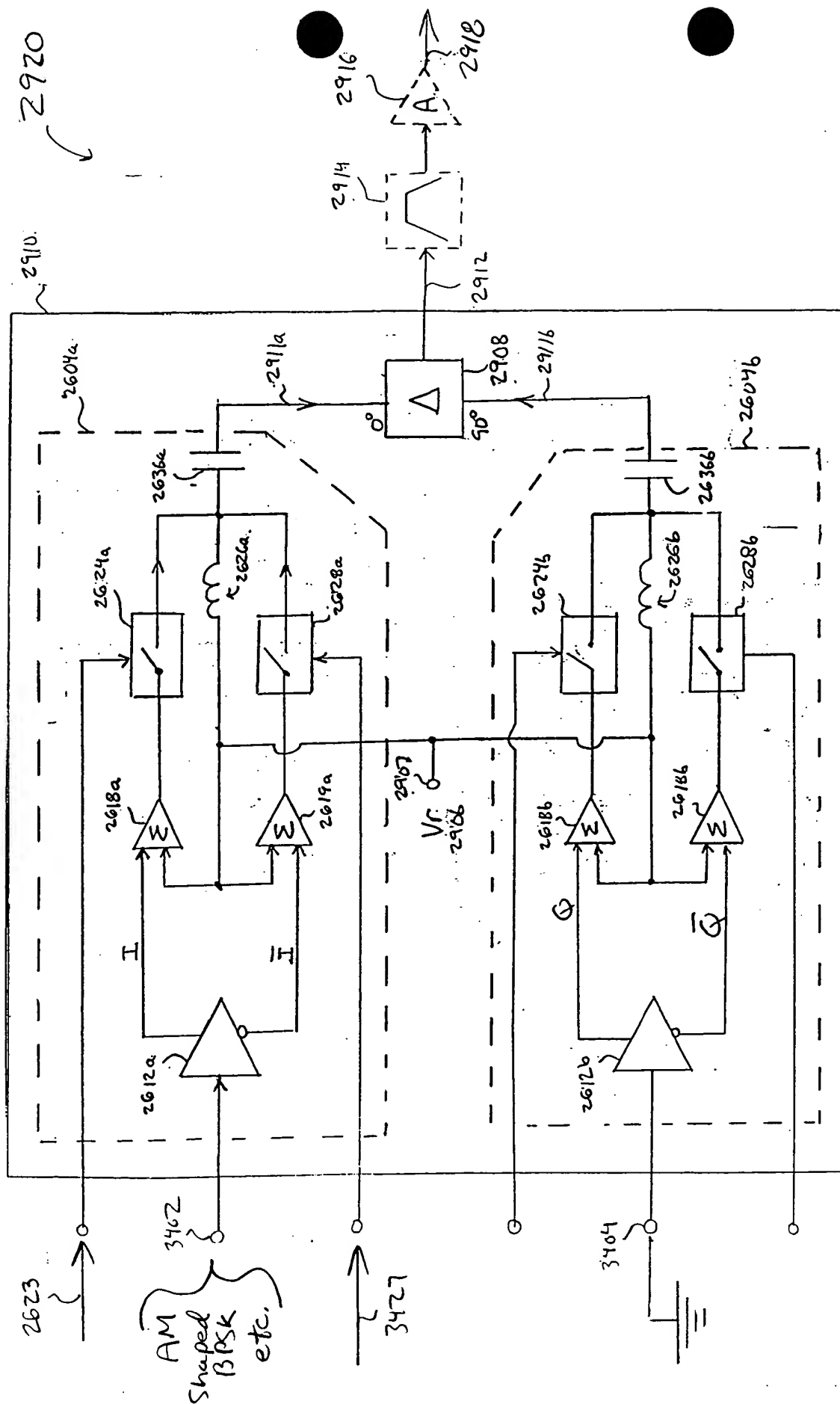


FIG. 34A

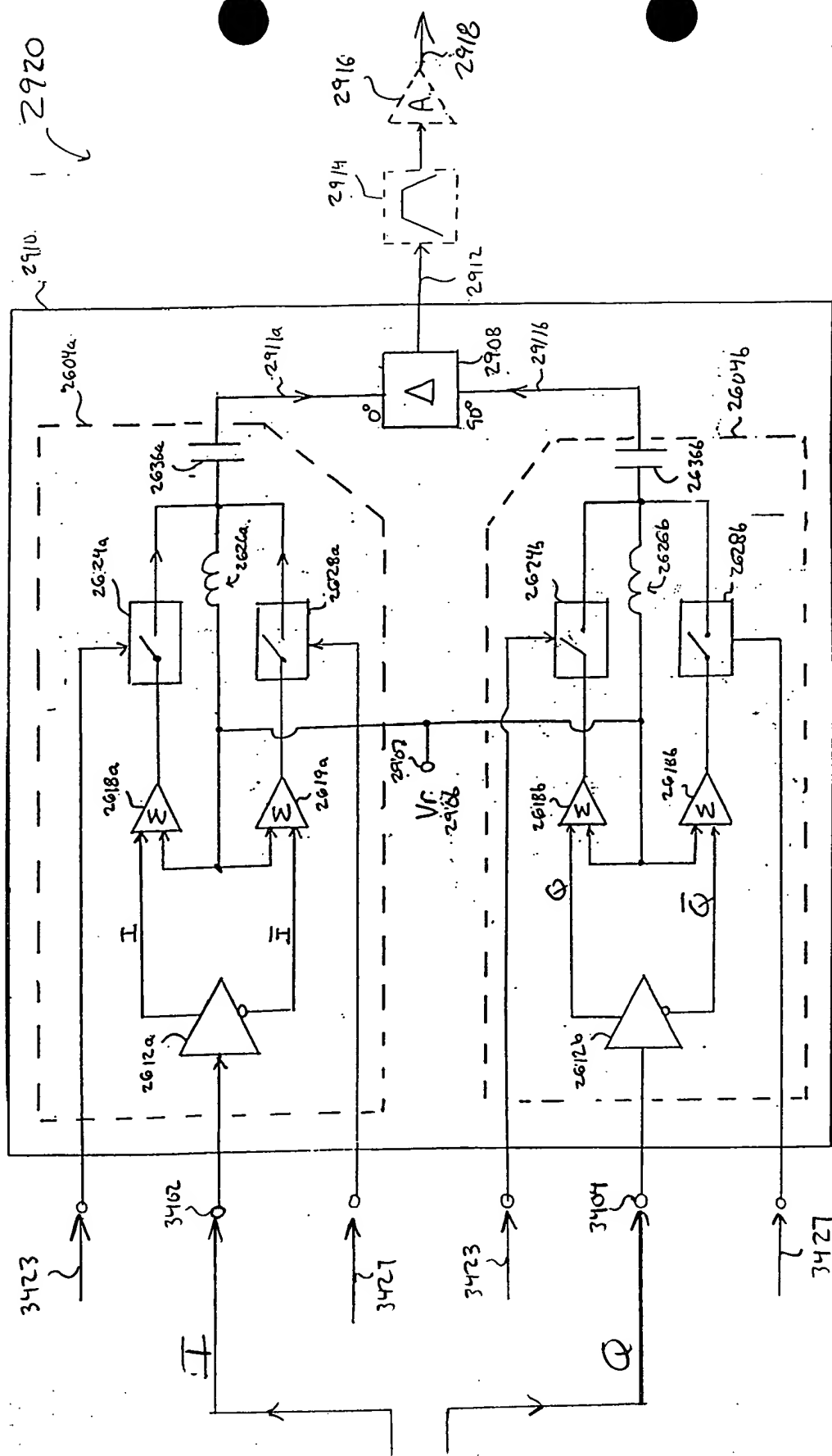


FIG. 34B

FM  
QPSK  
QAM  
OFDM  
CDMA  
FH  
GSM  
PM  
etc.



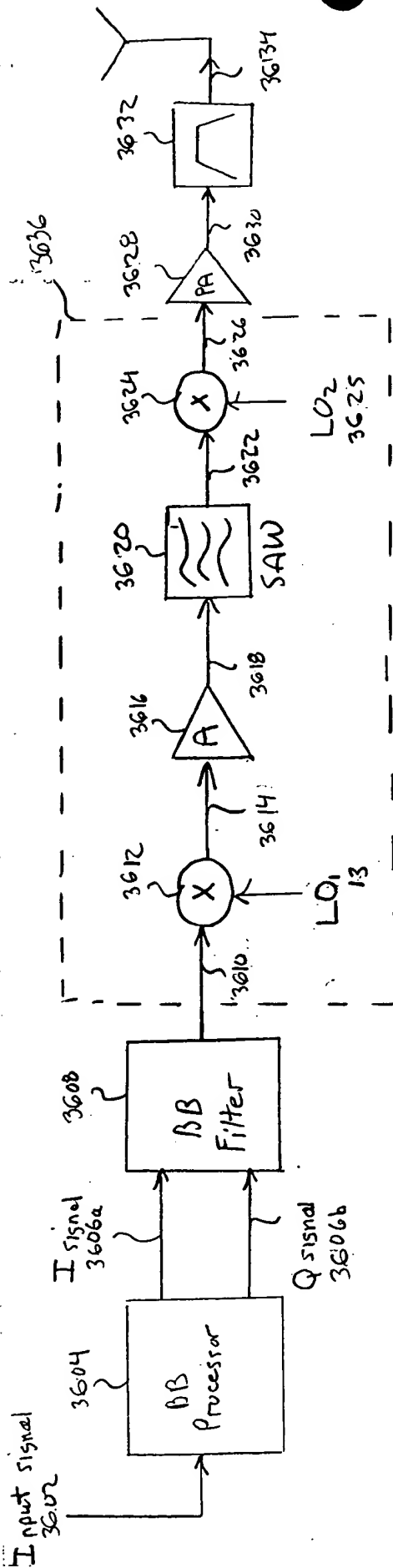
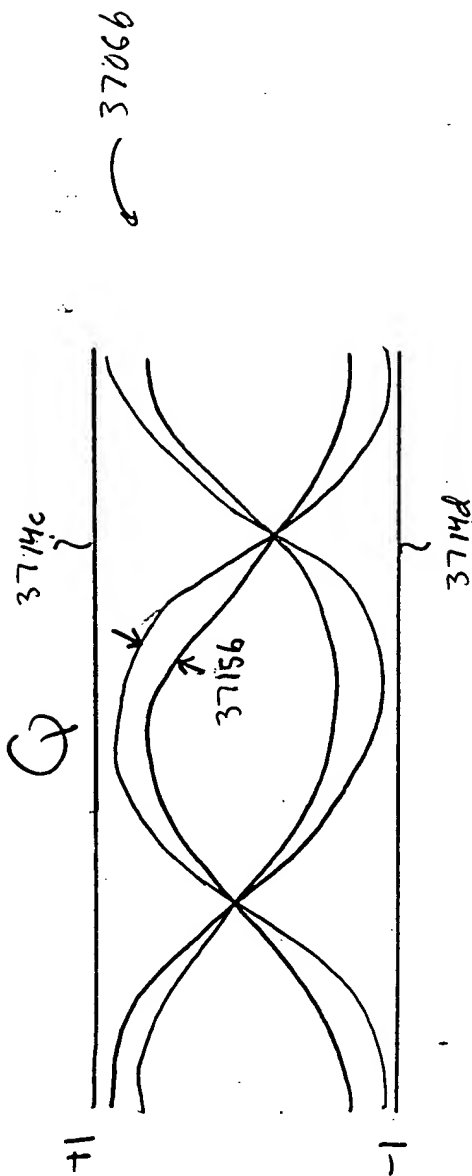
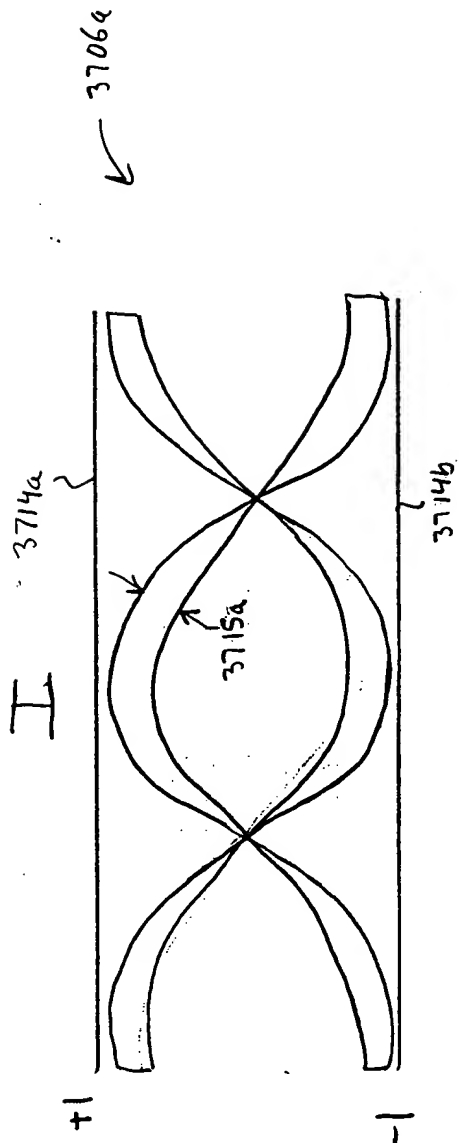


FIG. 36 is a Conventional Transmitter







004400 303030

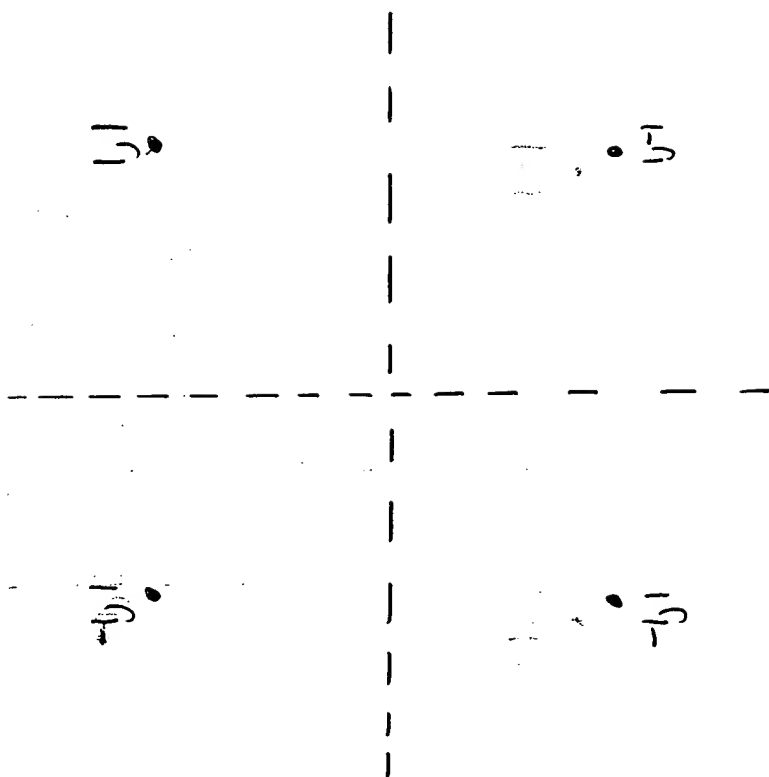



FIG. 370

  
National Brand  
100 SHEETS FULLER 5 SQUARE  
42-381 100 SHEETS FULLER 5 SQUARE  
42-382 100 SHEETS FULLER 5 SQUARE  
42-383 100 SHEETS FULLER 5 SQUARE  
42-384 100 SHEETS FULLER 5 SQUARE  
42-385 100 SHEETS FULLER 5 SQUARE  
42-386 100 SHEETS FULLER 5 SQUARE  
42-387 100 SHEETS FULLER 5 SQUARE  
42-388 100 SHEETS FULLER 5 SQUARE  
42-389 100 SHEETS FULLER 5 SQUARE  
MADE IN U.S.A.





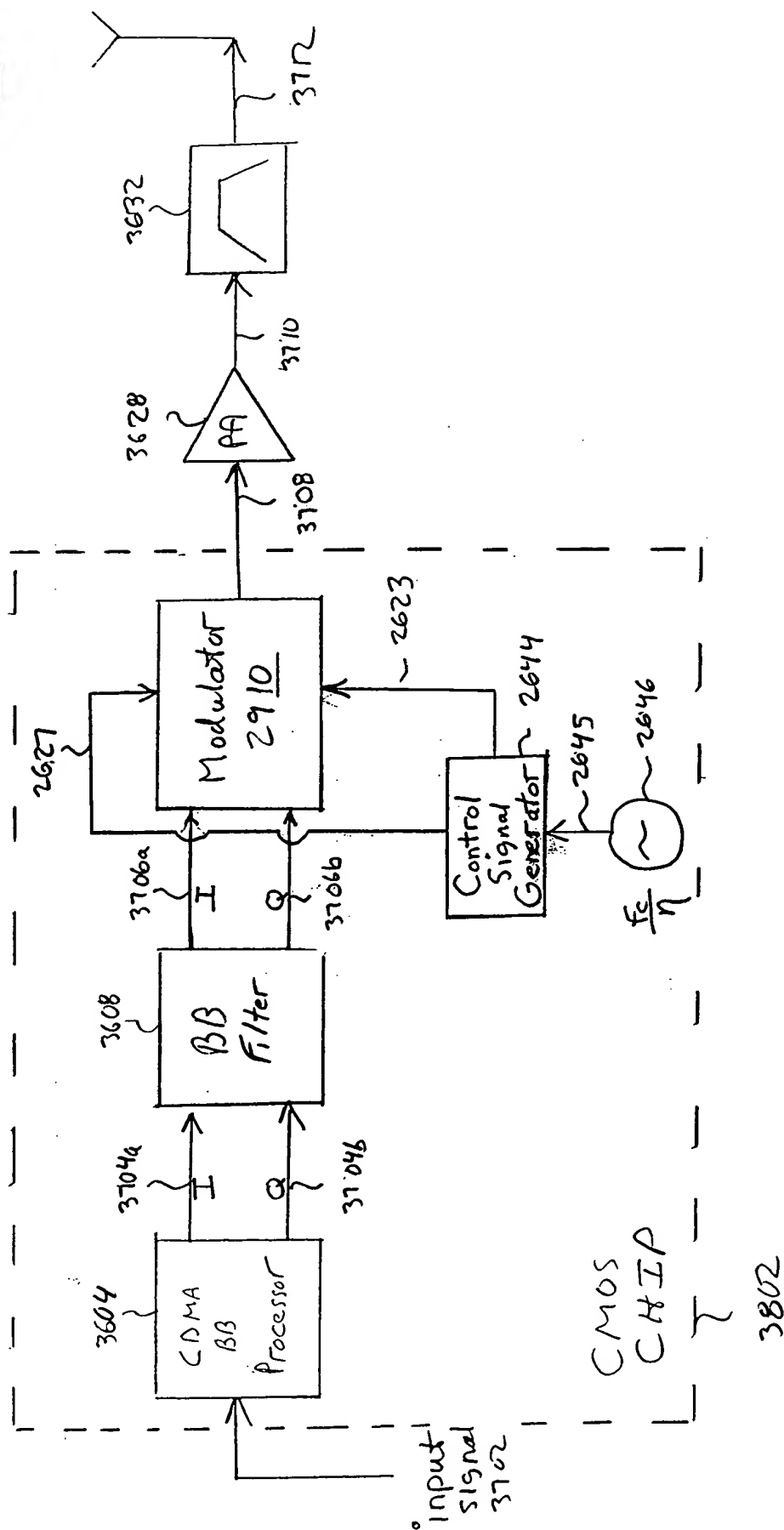


FIG. 38: CDMA CMOS CHIP

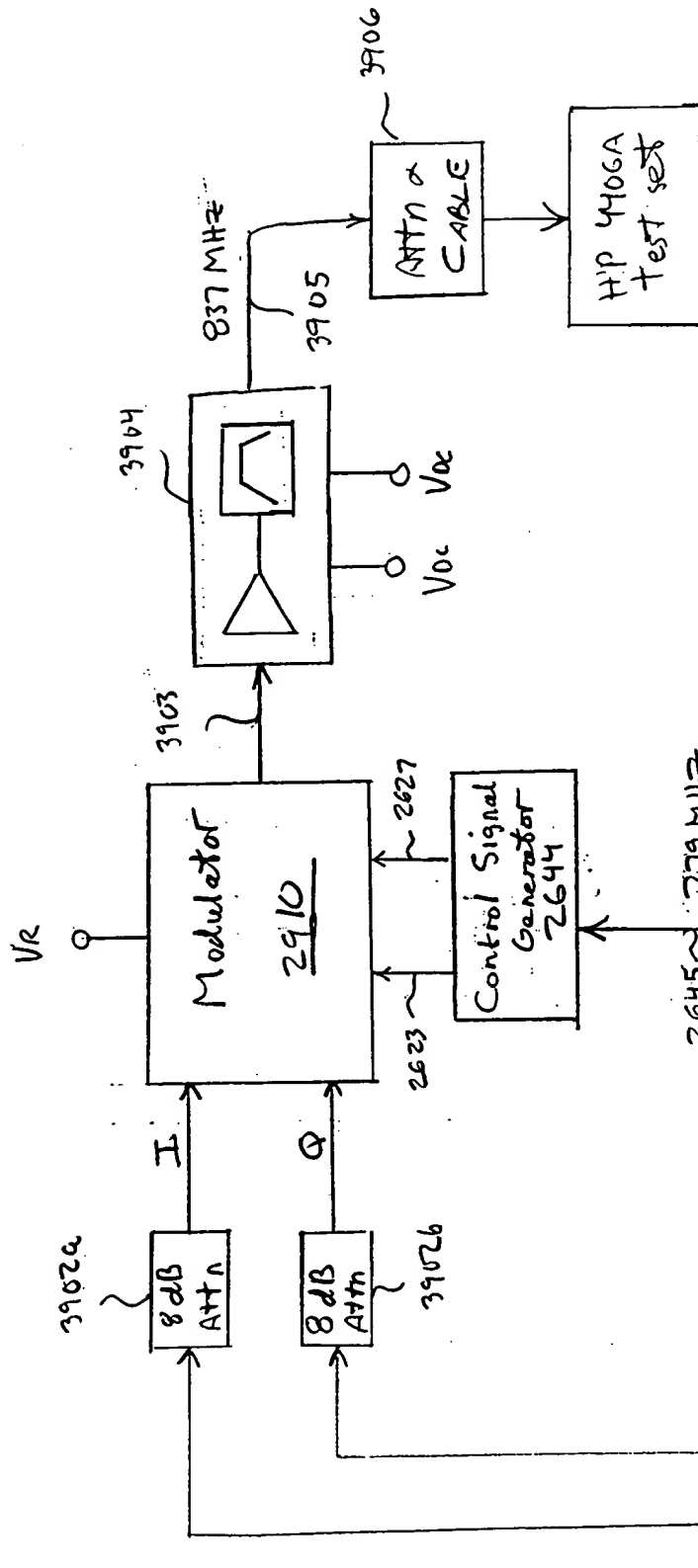


Fig. 39.

Base Station

4002 ~

FIG. 40

RHO	0.9970
EVM	5.51%
PHASE ERROR	1.80°
MAGNITUDE ERROR	4.53%
CARRIER INSERTION	-37.91 dB
PA POWER OUT	28.06 dBm

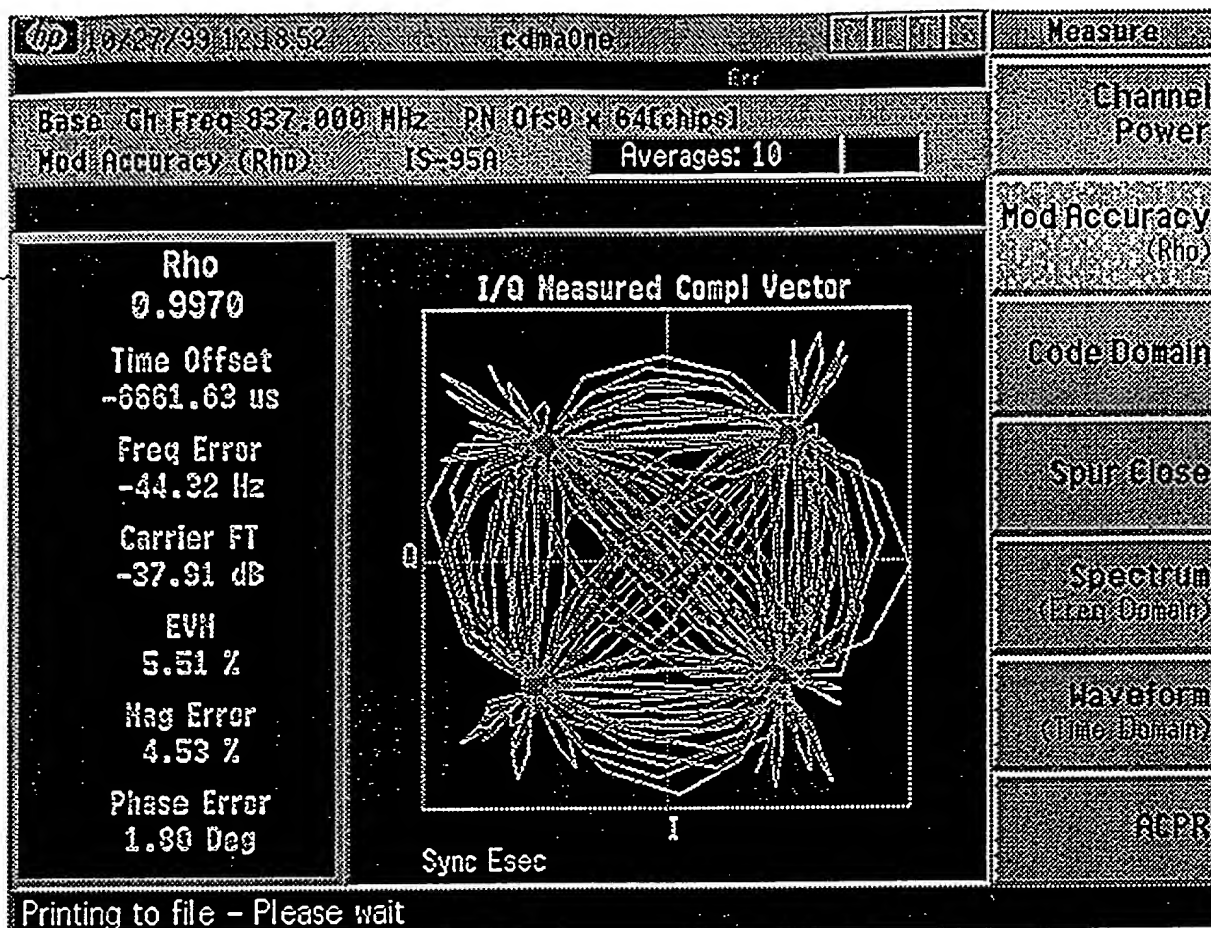
FREQUENCY (MHz) (Mobile Station)

	<i>LOW</i>	<i>MIDDLE</i>	<i>HIGH</i>
RHO	0.9892	0.9969	0.9892
EVM	10.39%	5.54%	10.39%
PHASE ERROR	4.47°	2.24°	4.08°
MAGNITUDE ERROR	6.84%	4.21%	8.27%
CARRIER INSERTION	-40.15 dB	-44.58 dB	-35.27 dB
PA POWER OUT	27.36 dBm	28.11 dBm	27.55 dBm

~ 4102

FIG. 41

✓

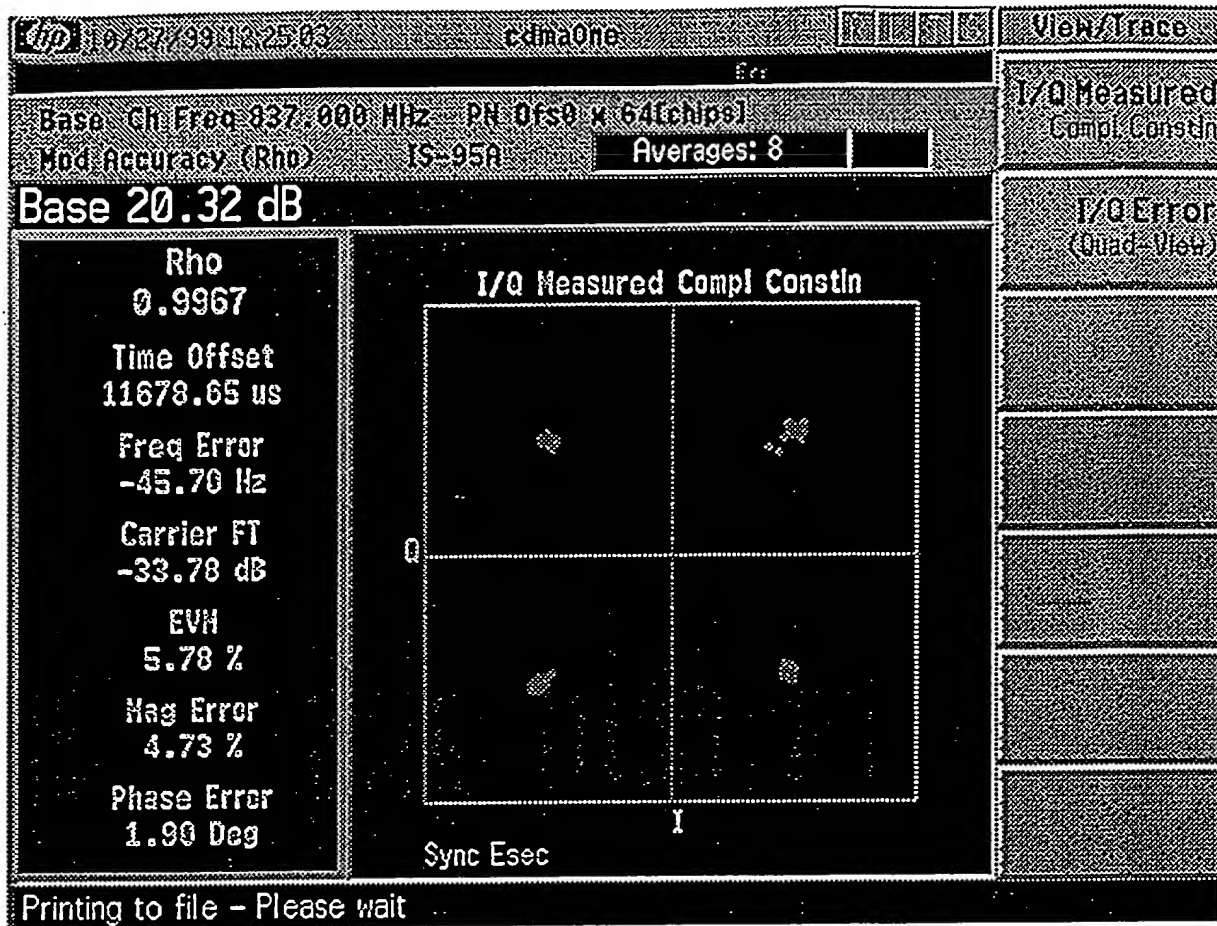


### Base Station Constellation for Pilot Channel Test

FIG. 42



4302  
↓



Base Station Sampled Constellation

FIG. 43

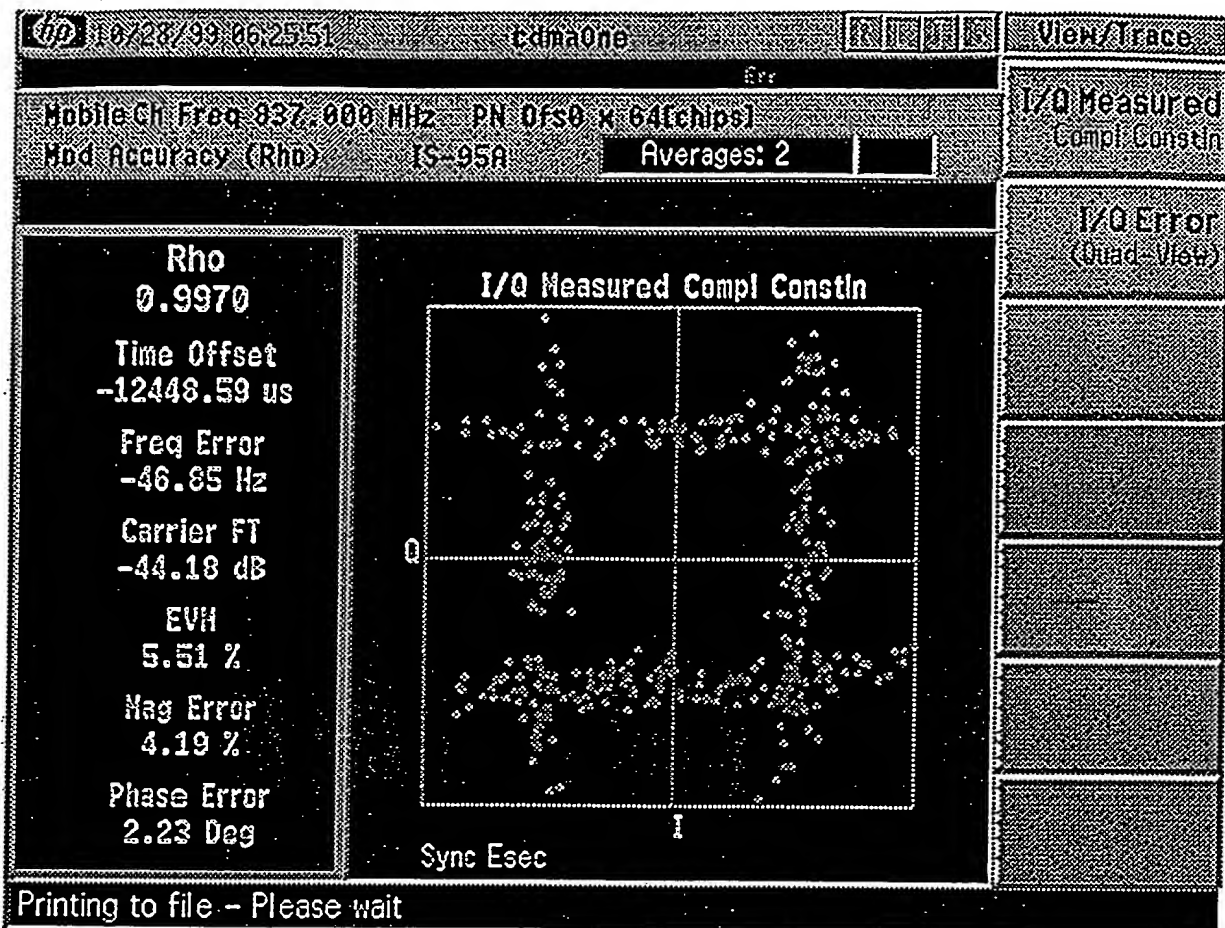
001100-31930300

✓



FIG. 44

4502  
↓



Mobile Station Sampled Constellation

FIG. 45

4602  
J

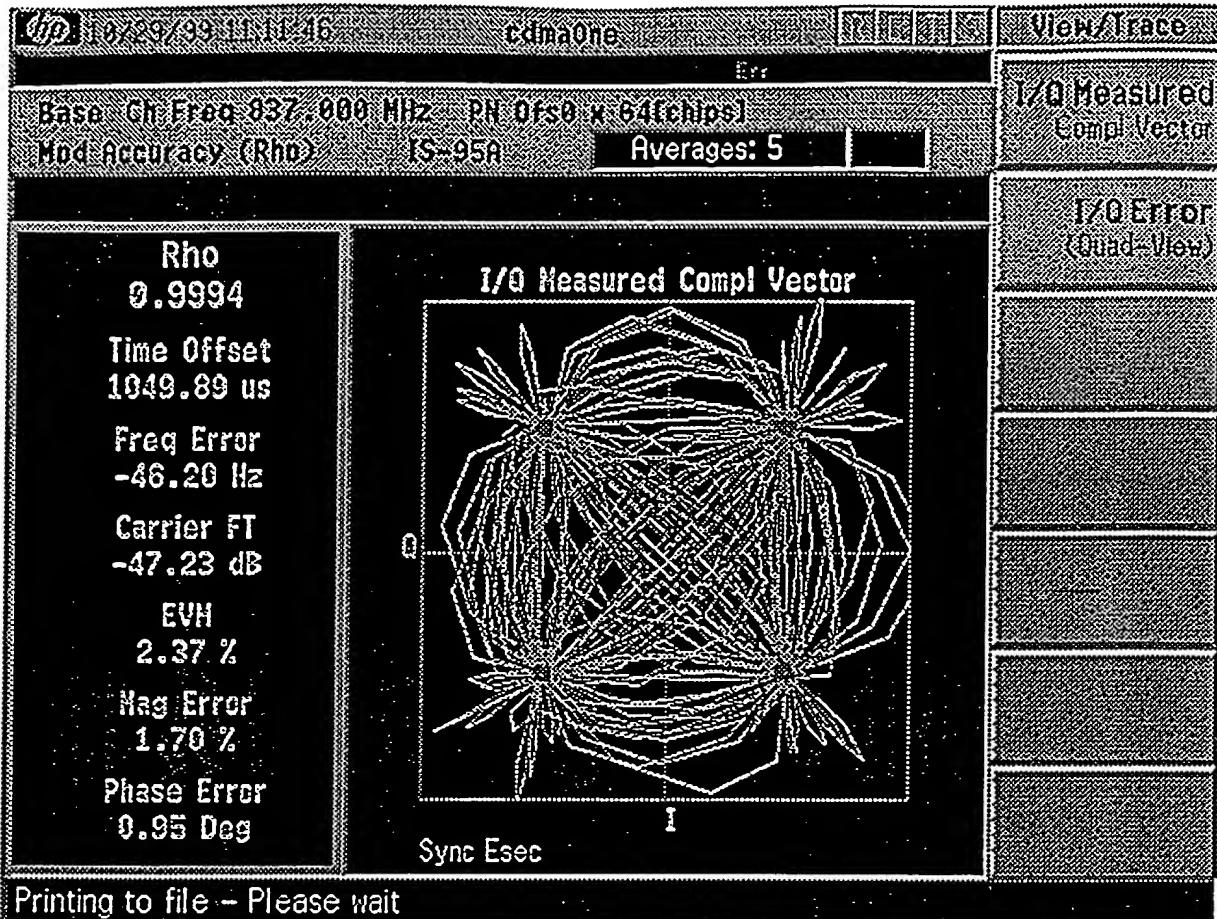
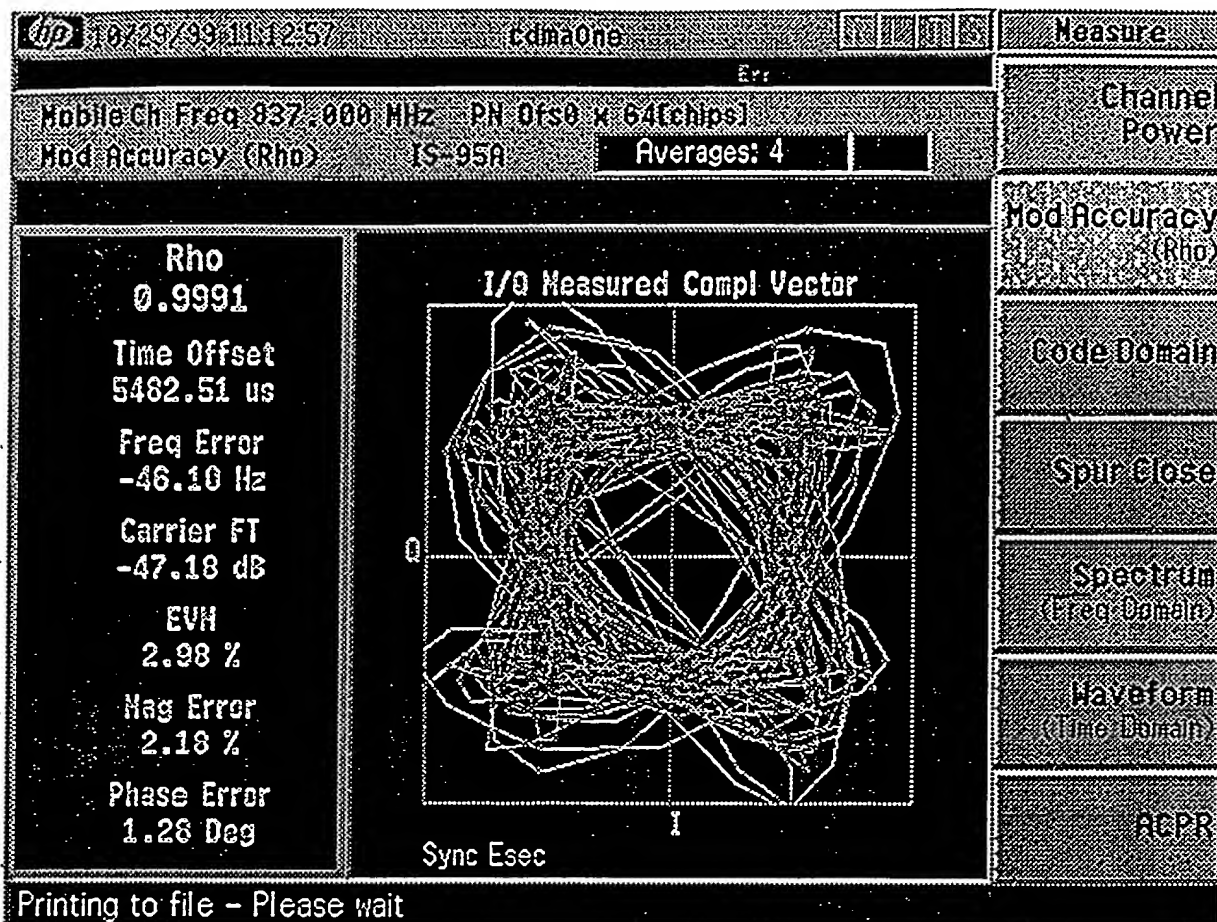


FIG. 46

4702  
↓

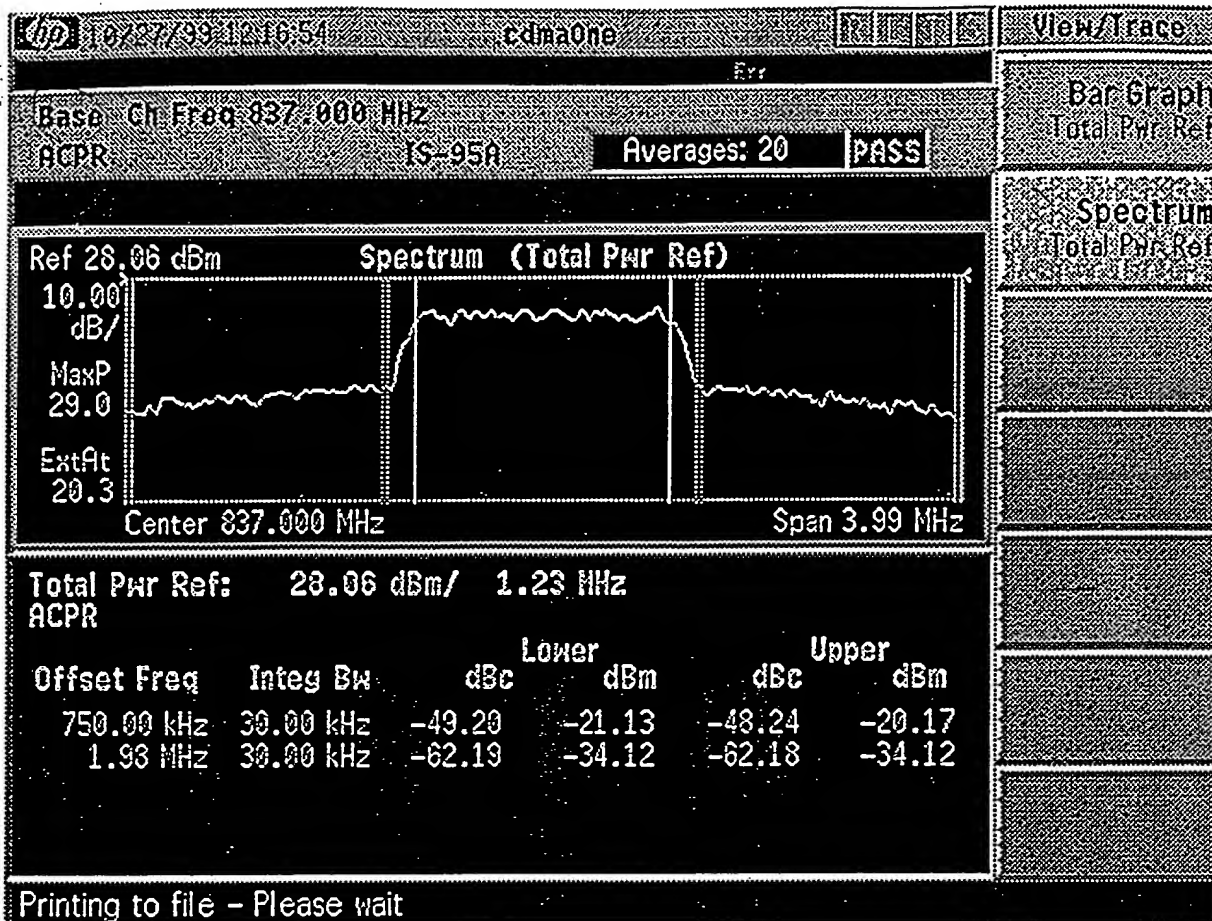


Mobile Constellation using only H/P Test Equipment

FIG. 47

001101-5139560

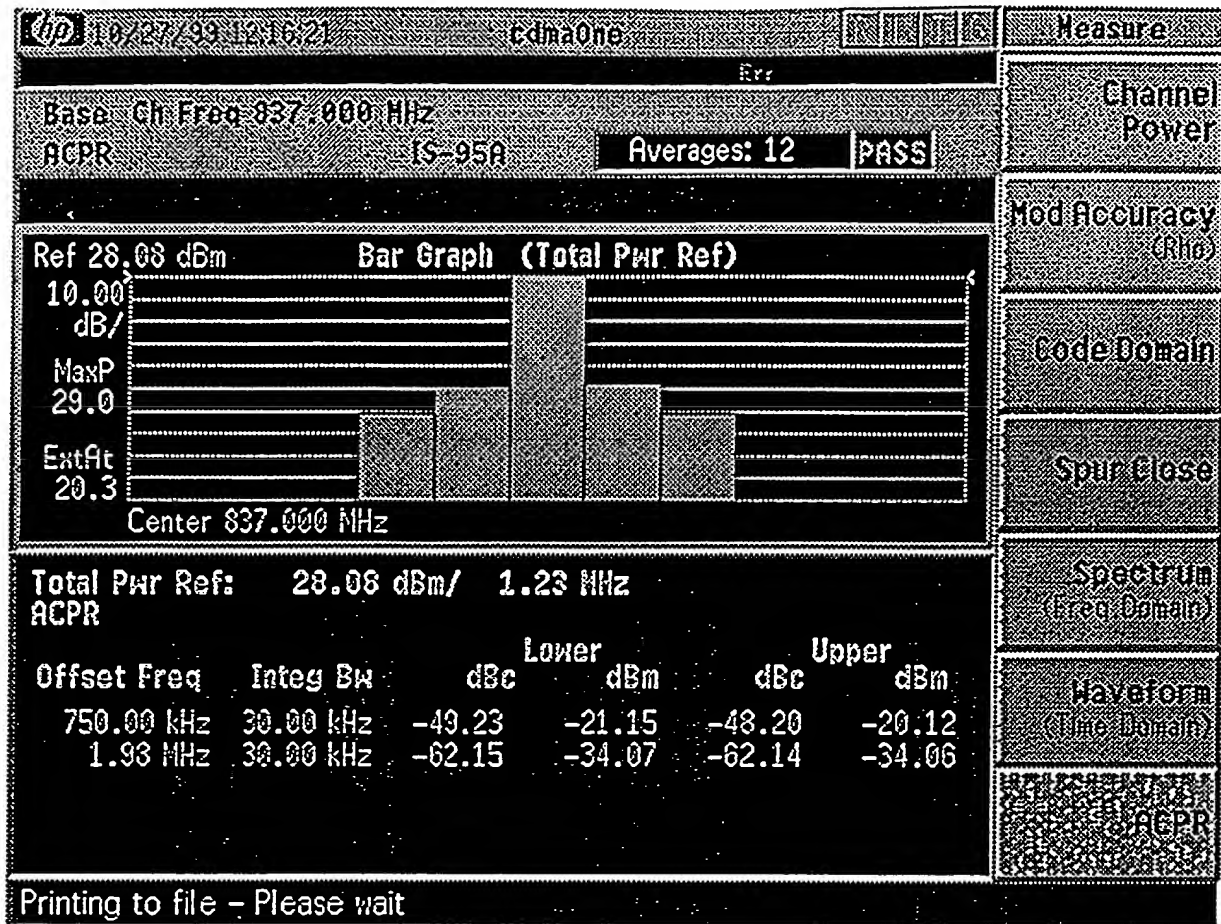
4802  
↓



004E05T95E560

FIG 48

4902  
↓



Base Station Spectral Response with Mask

FIG. 49

001100 919500



5062

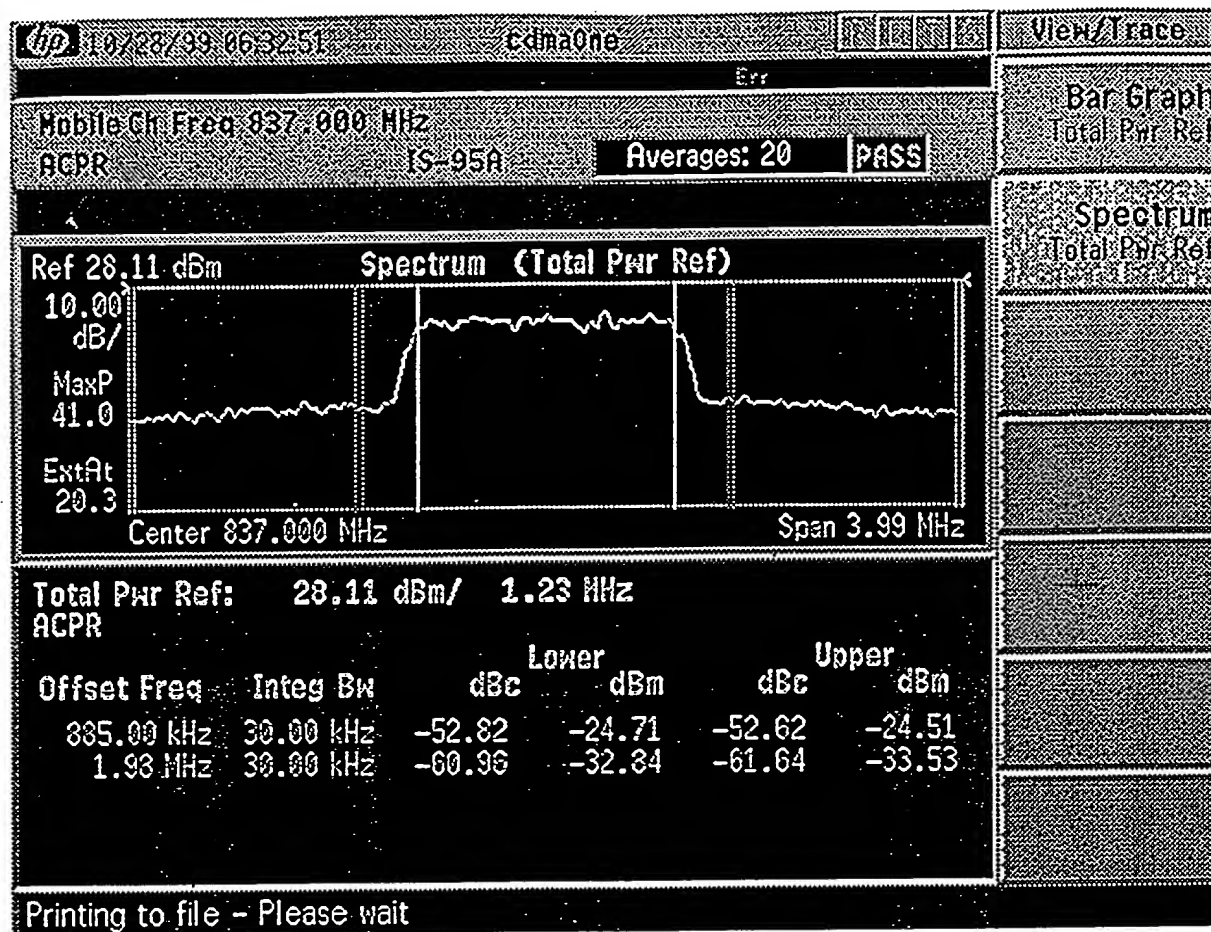


FIG. 50

001100-5133000



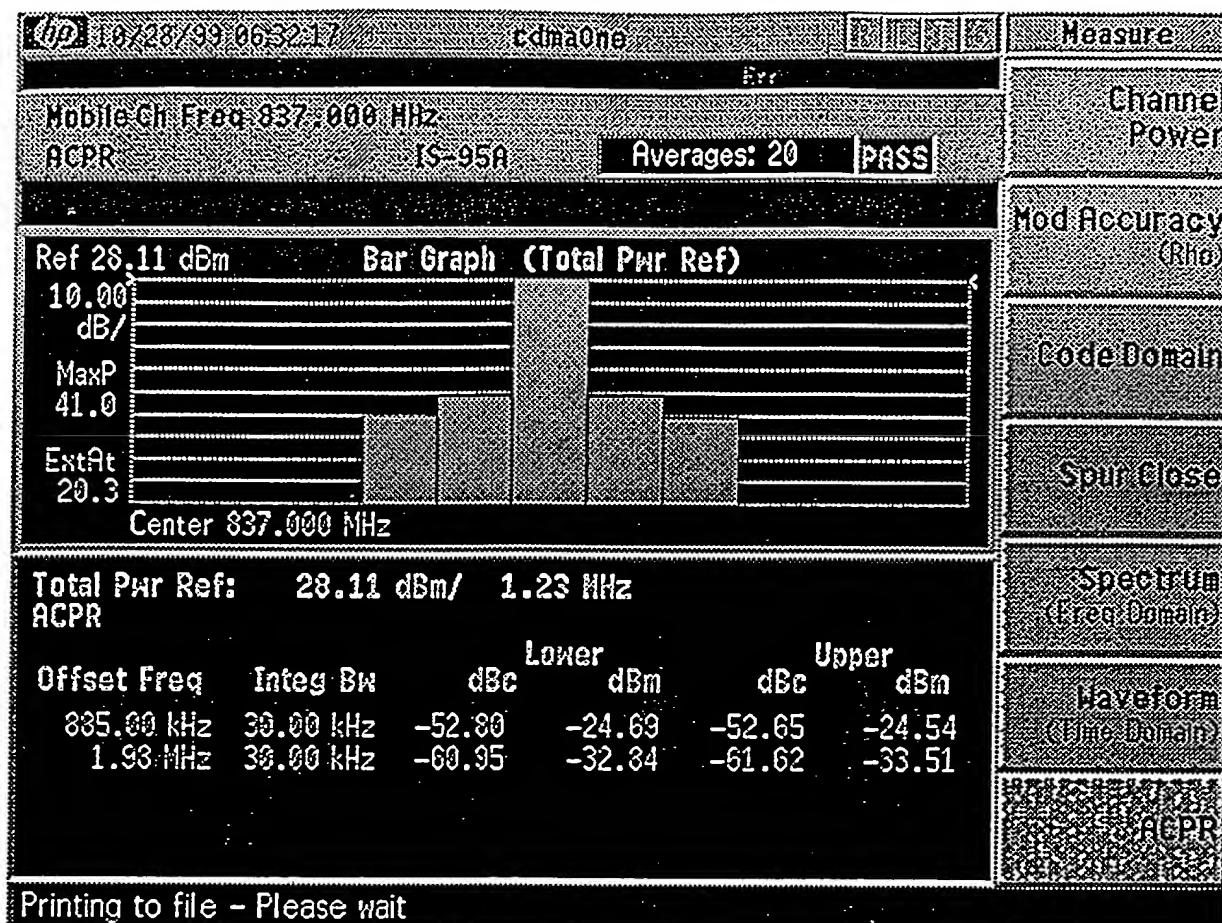
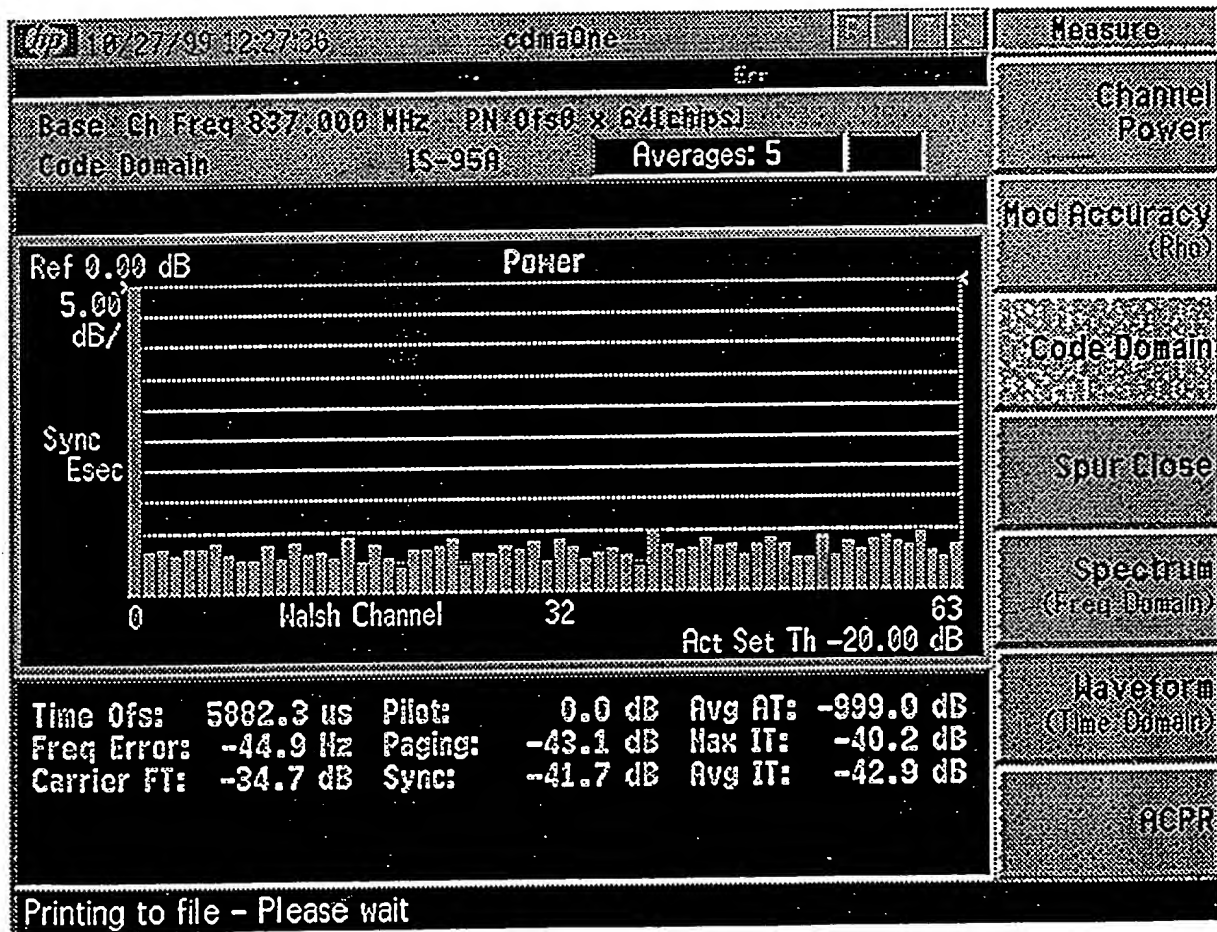


Figure 3.2-2 Mobile Station Spectral Response with Mask

FIG. 51

00100 97932500



CDMA Crosstalk

FIG. 52A

0077 460 3034560

*Sequence for IQ Input Level Variance*

FIG 52B

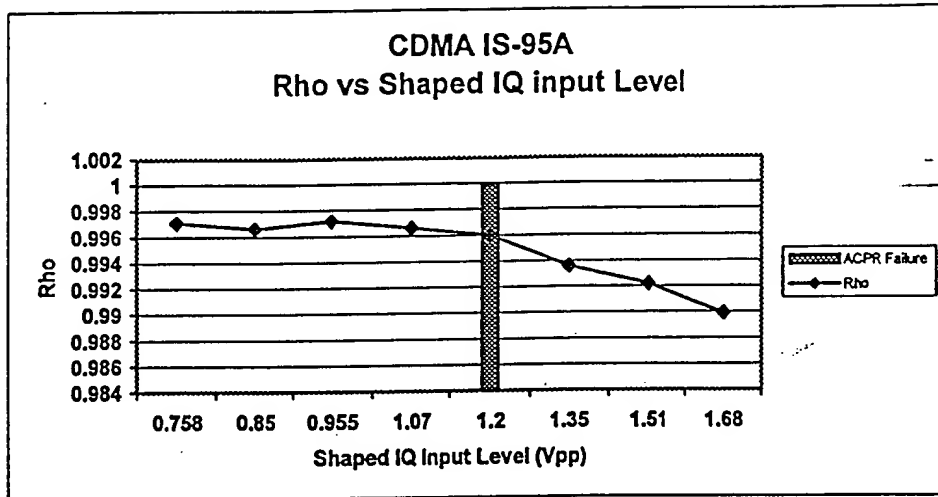


FIG 52C

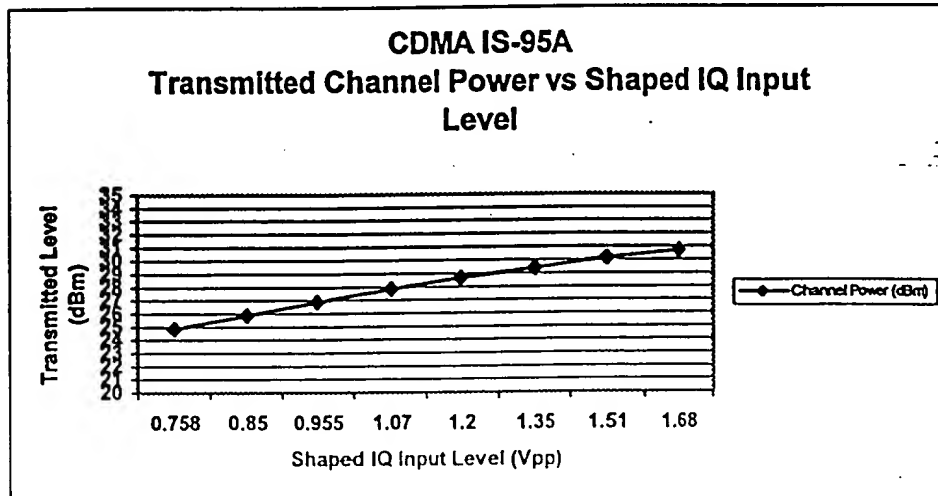


FIG 52D

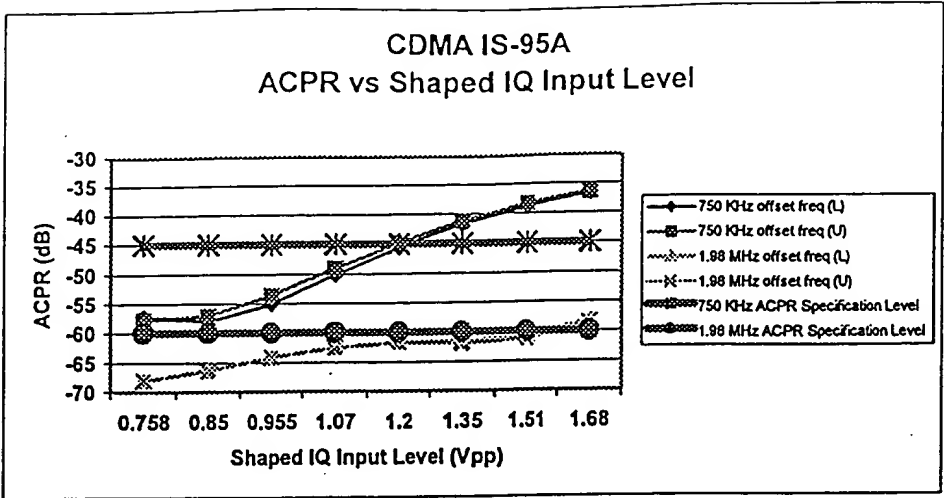


FIG 52E

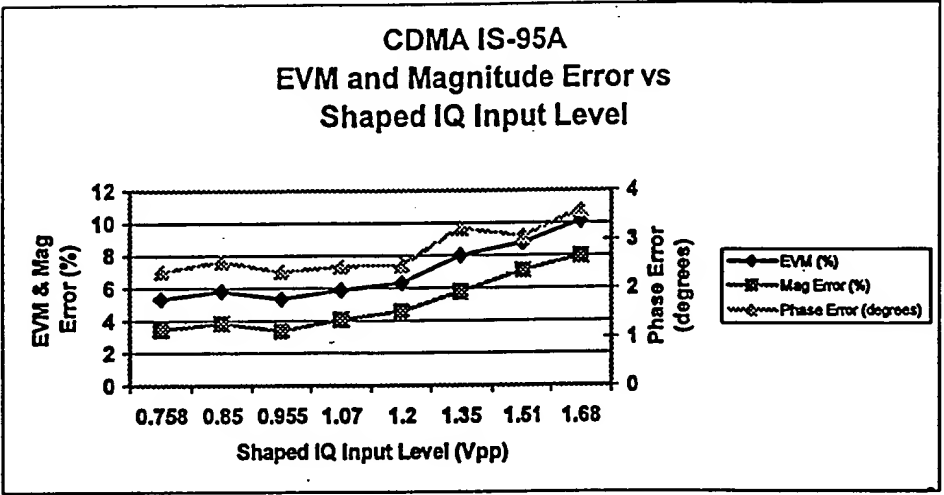
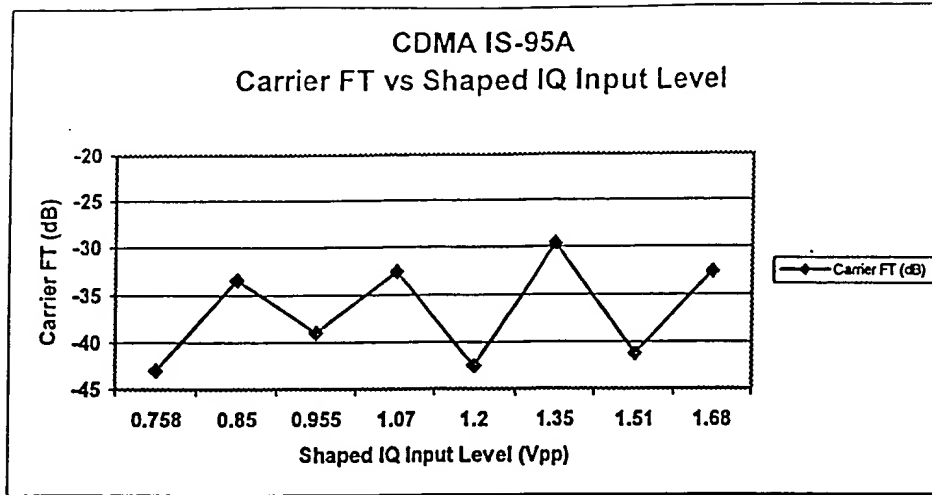


FIG. 52F



Sequence for LO Variance

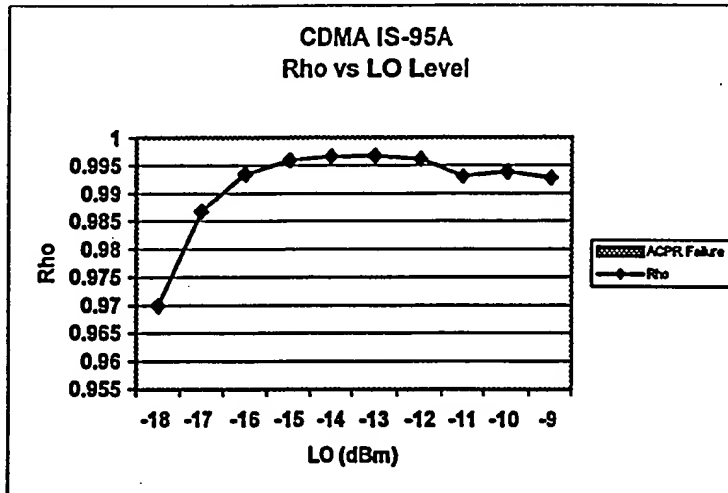


FIG. 52G

FIG. 52H

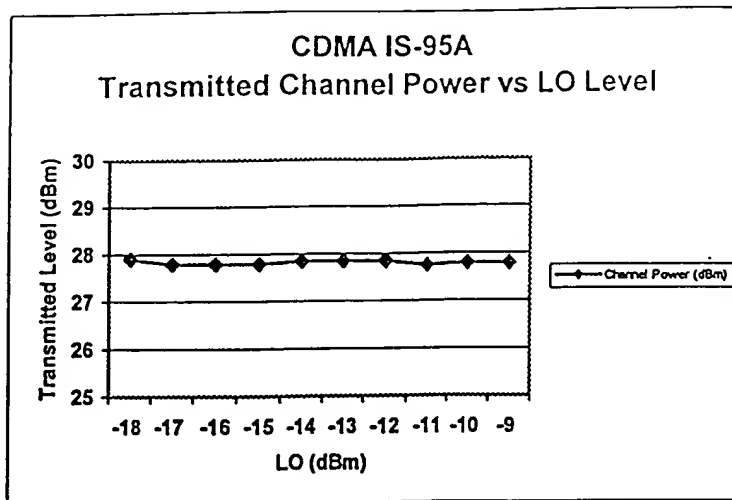
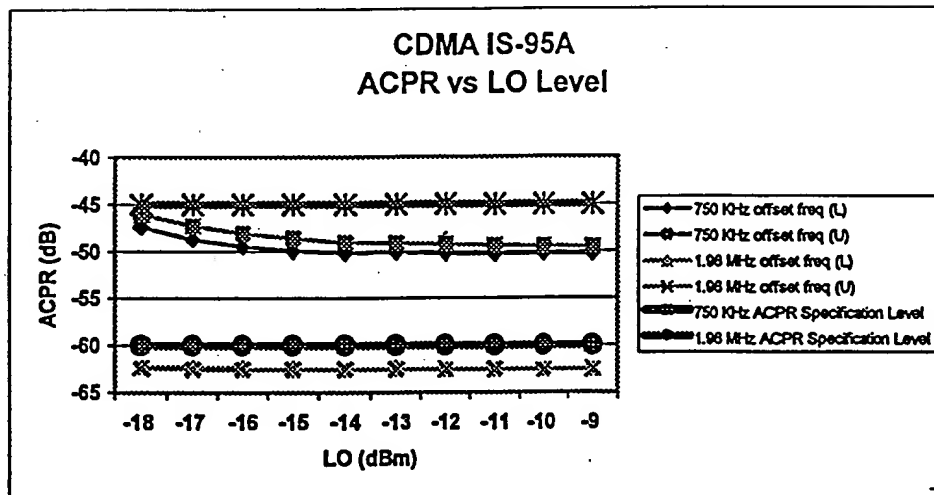


FIG. 52I



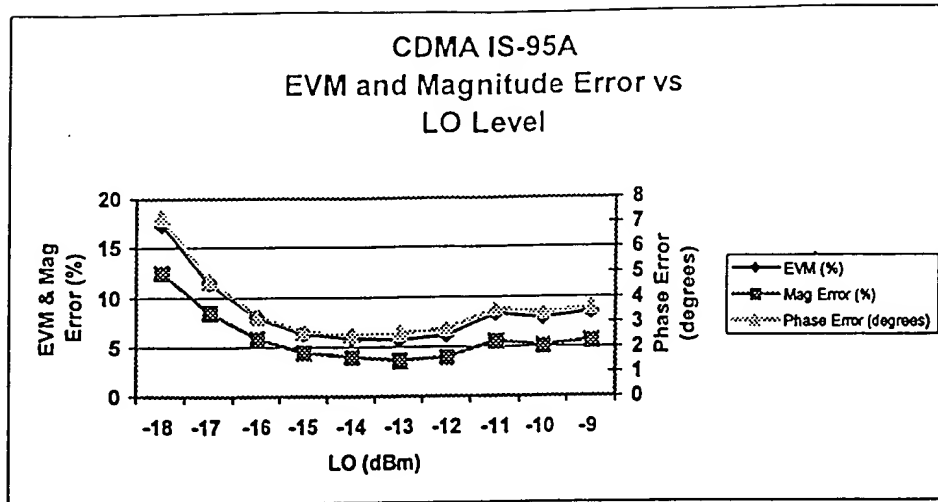
[illegible]

FIG. 52K

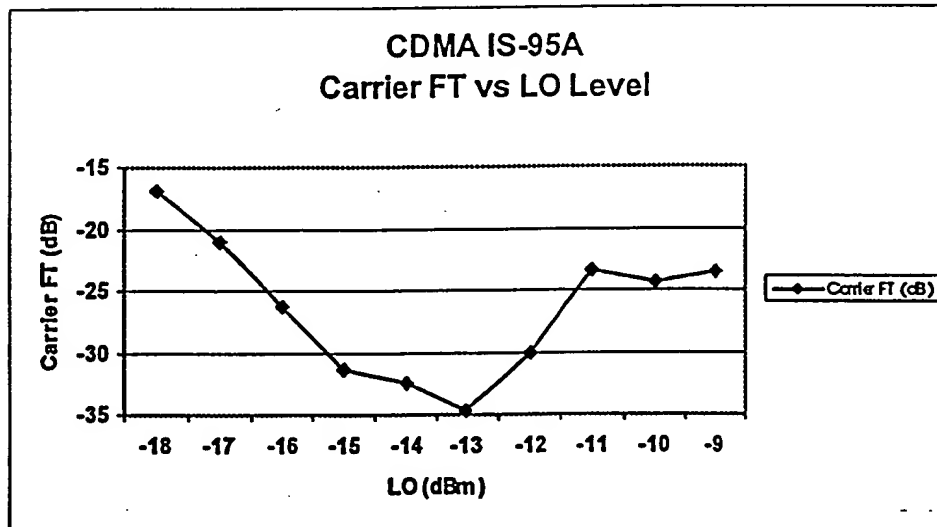


FIG. 52L

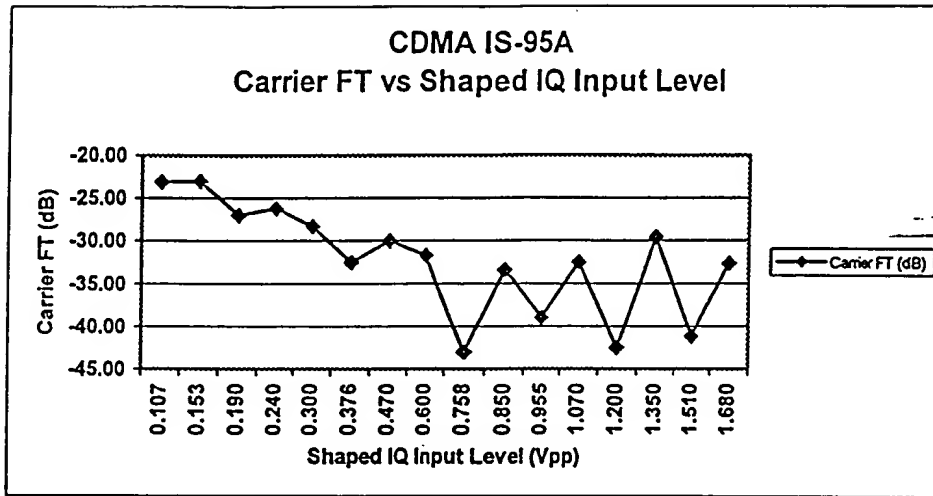


FIG. 52M

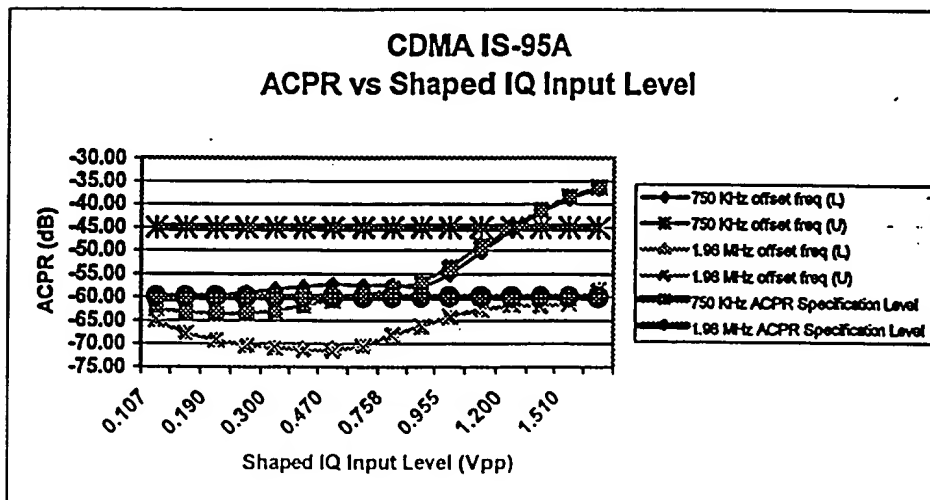
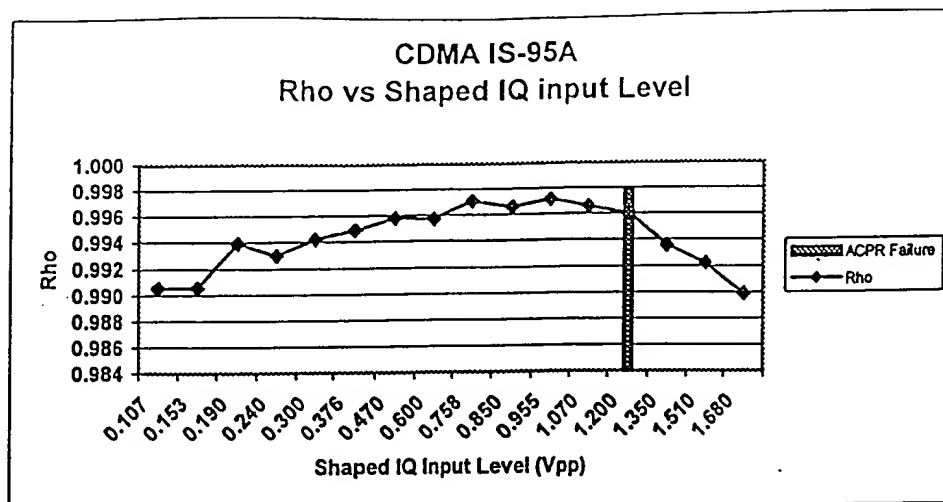


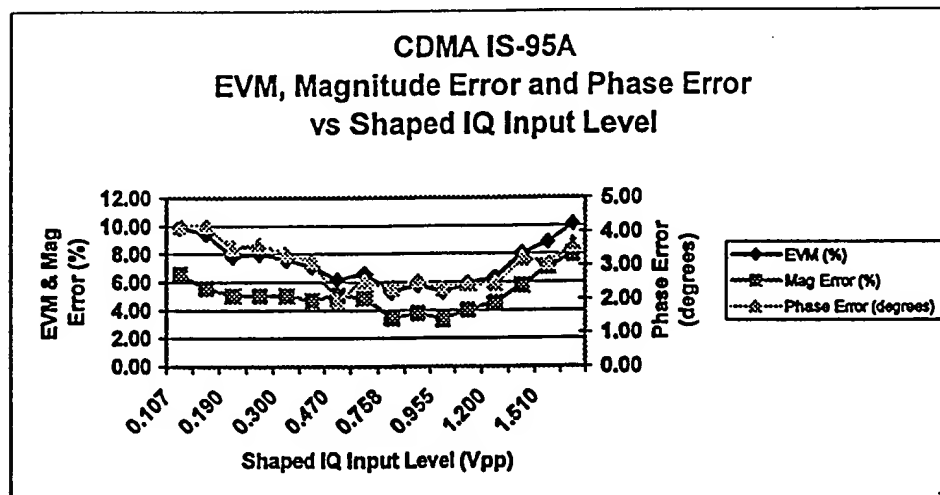


FIG. 52N



004420 303030

FIG 520



# Sequence for IQ Input Level Variance

FIG. 52P

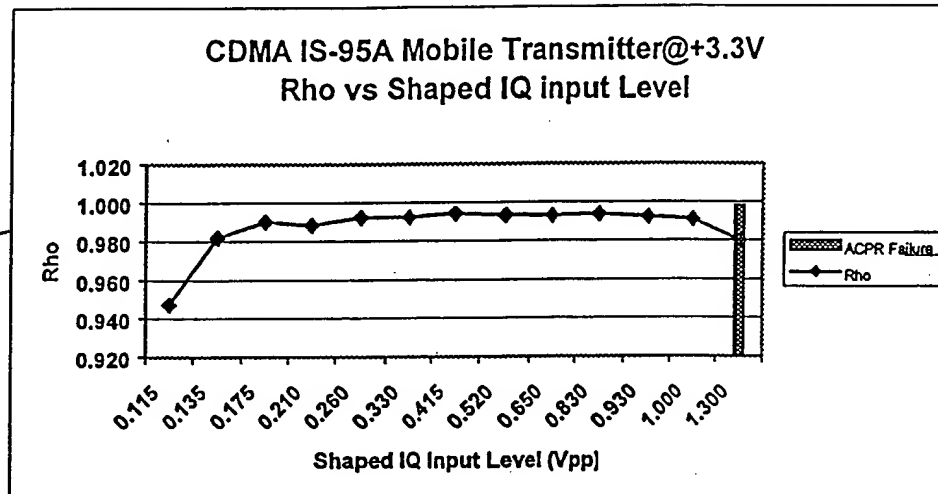
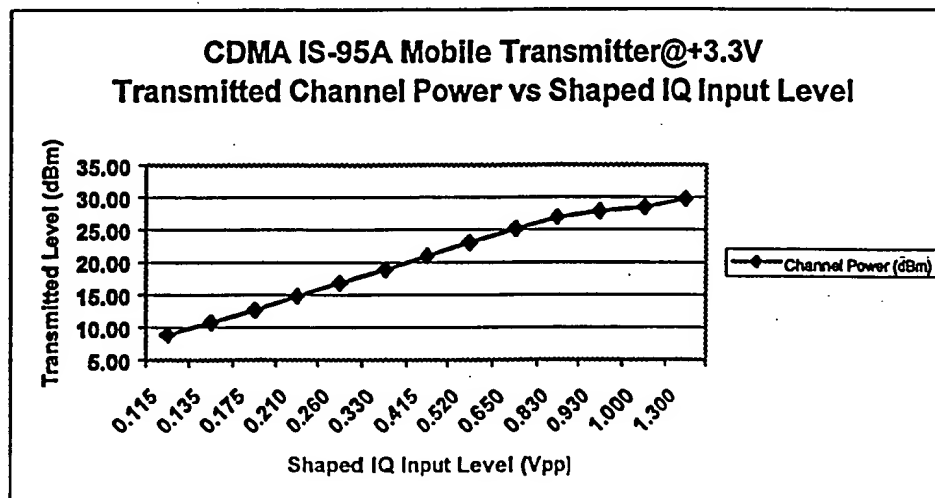
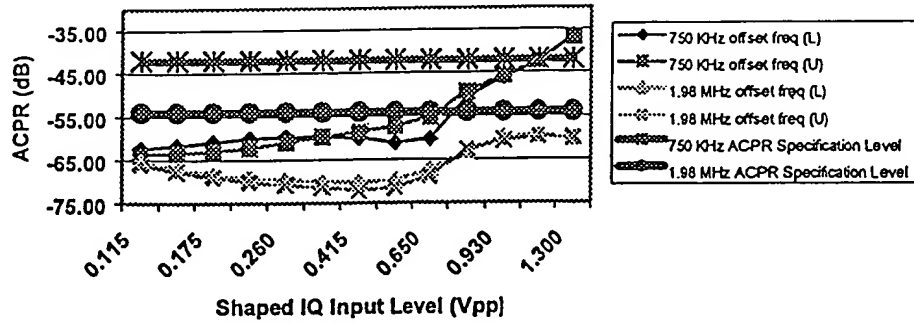


FIG. 52Q



CDMA IS-95A Mobile Transmitter@+3.3V  
ACPR vs Shaped IQ Input Level



CDMA IS-95A Mobile Transmitter@+3.3V  
EVM, Magnitude Error and Phase Error  
vs Shaped IQ Input Level

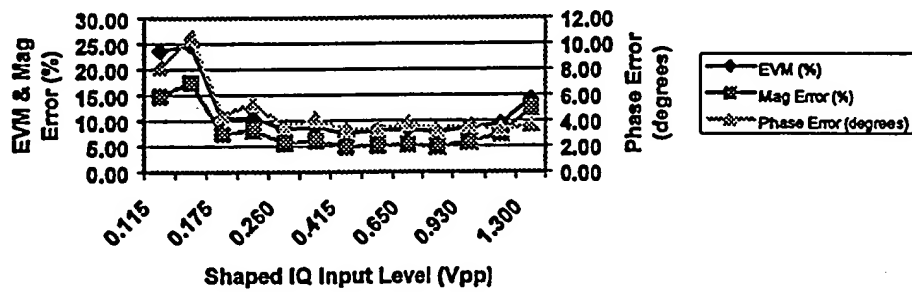


FIG. 52T

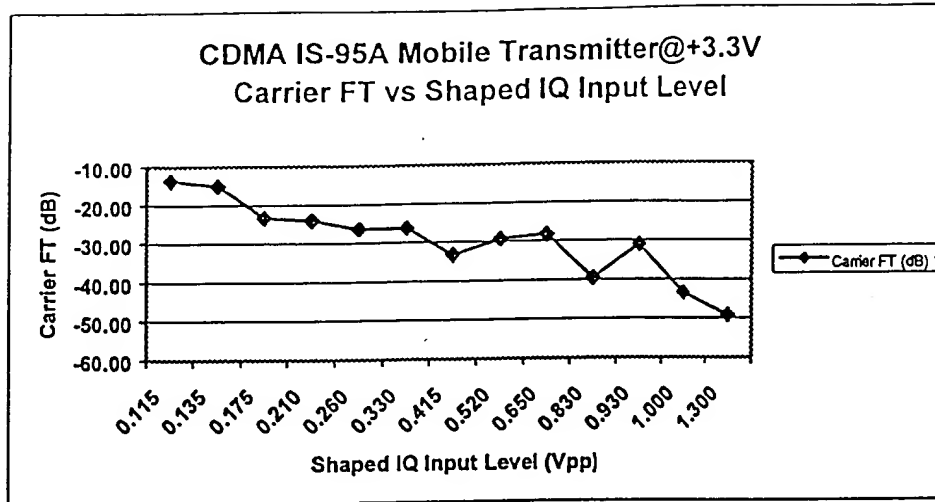


Figure 3.6-5

Sequence for LO Variance

FIG. 52U

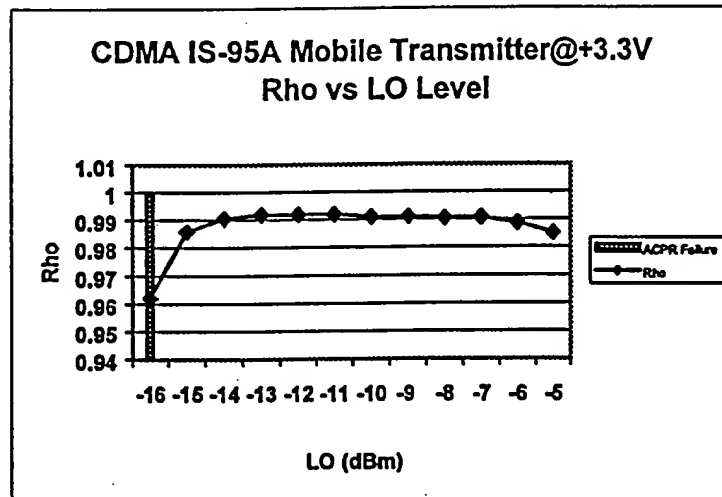


Figure 3.6-6

FIG. 52U

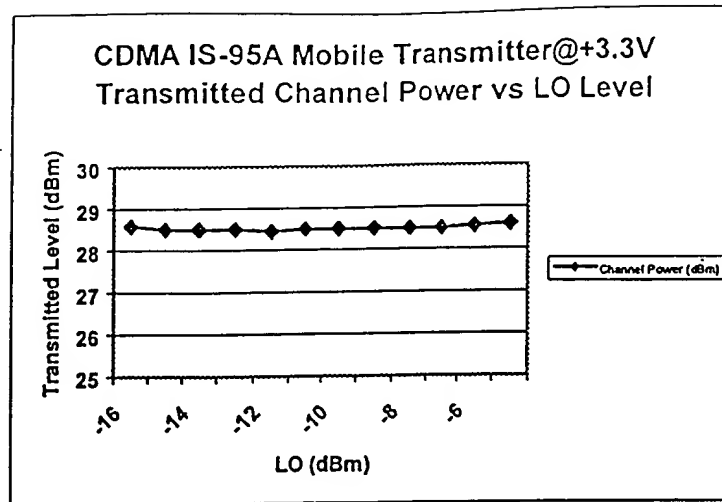


FIG. 52W

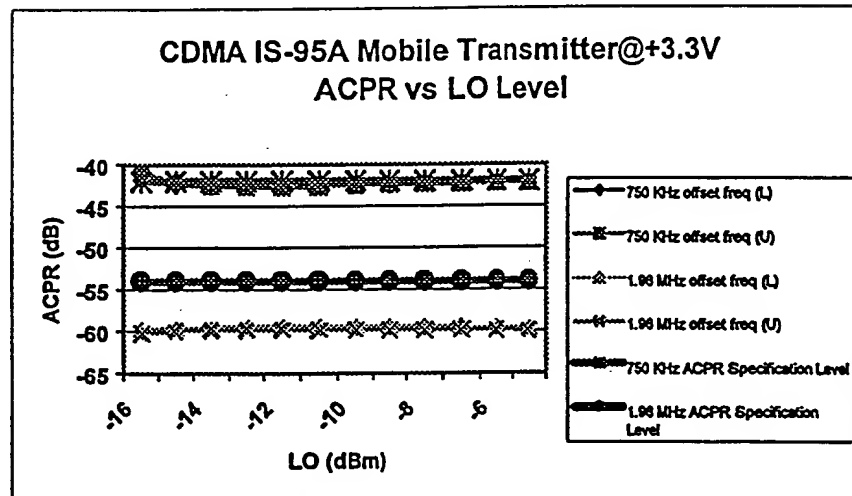


FIG. 52X

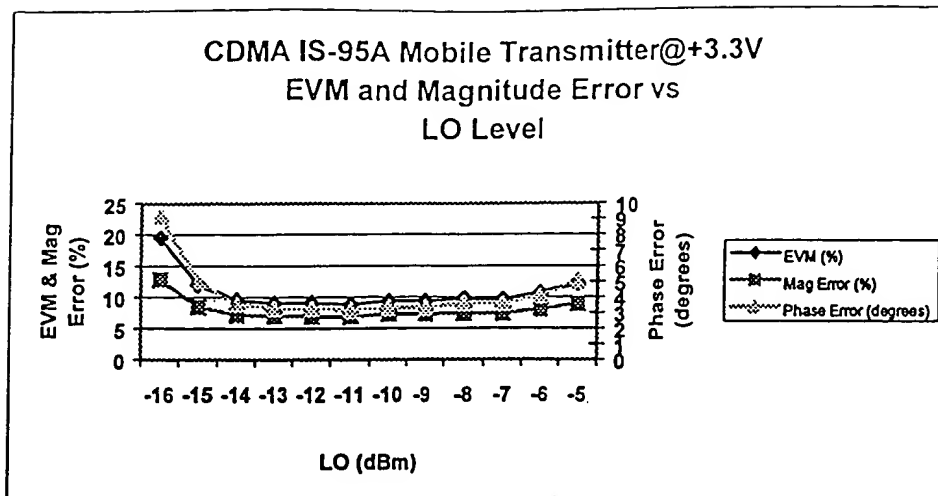
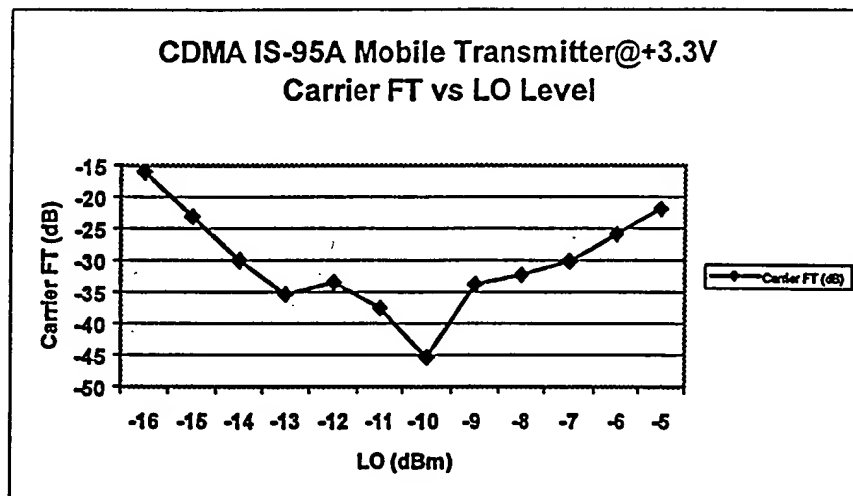


FIG. 52Y



<i>Quantity</i>	<i>Description</i>	<i>Voltage</i>	<i>Total Current</i>	<i>Power</i>
2	Cores	3.3	4mA	13.2mW
2	Baseband Interface Circuits with/BW Limit	3.3	6mA	21.8mW
1	Clock Circuit	3.3	5mA	20.0mW
			<i>Sub Total</i>	54.0mW

FIG. 522

13,782 500 SHEETS, FILLER 5 SQUARE  
 42,382 500 SHEETS, FILLER 5 SQUARE  
 42,382 100 SHEETS, EYE-EASE 5 SQUARE  
 42,382 200 SHEETS, EYE-EASE 5 SQUARE  
 42,382 100 RECYCLED WHITE 5 SQUARE  
 42,382 200 RECYCLED WHITE 5 SQUARE  
 Made in U.S.A.

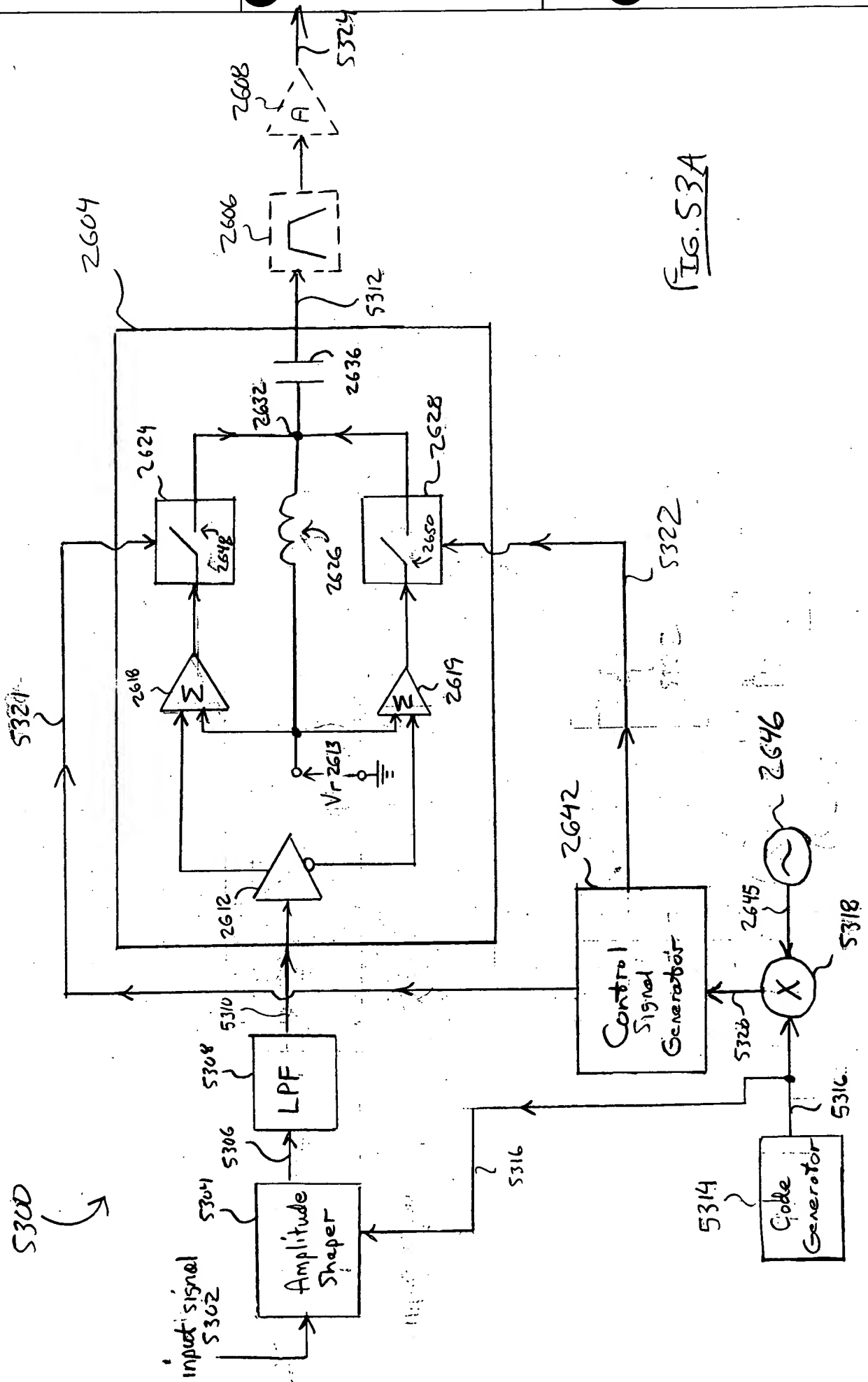


FIG. 53A







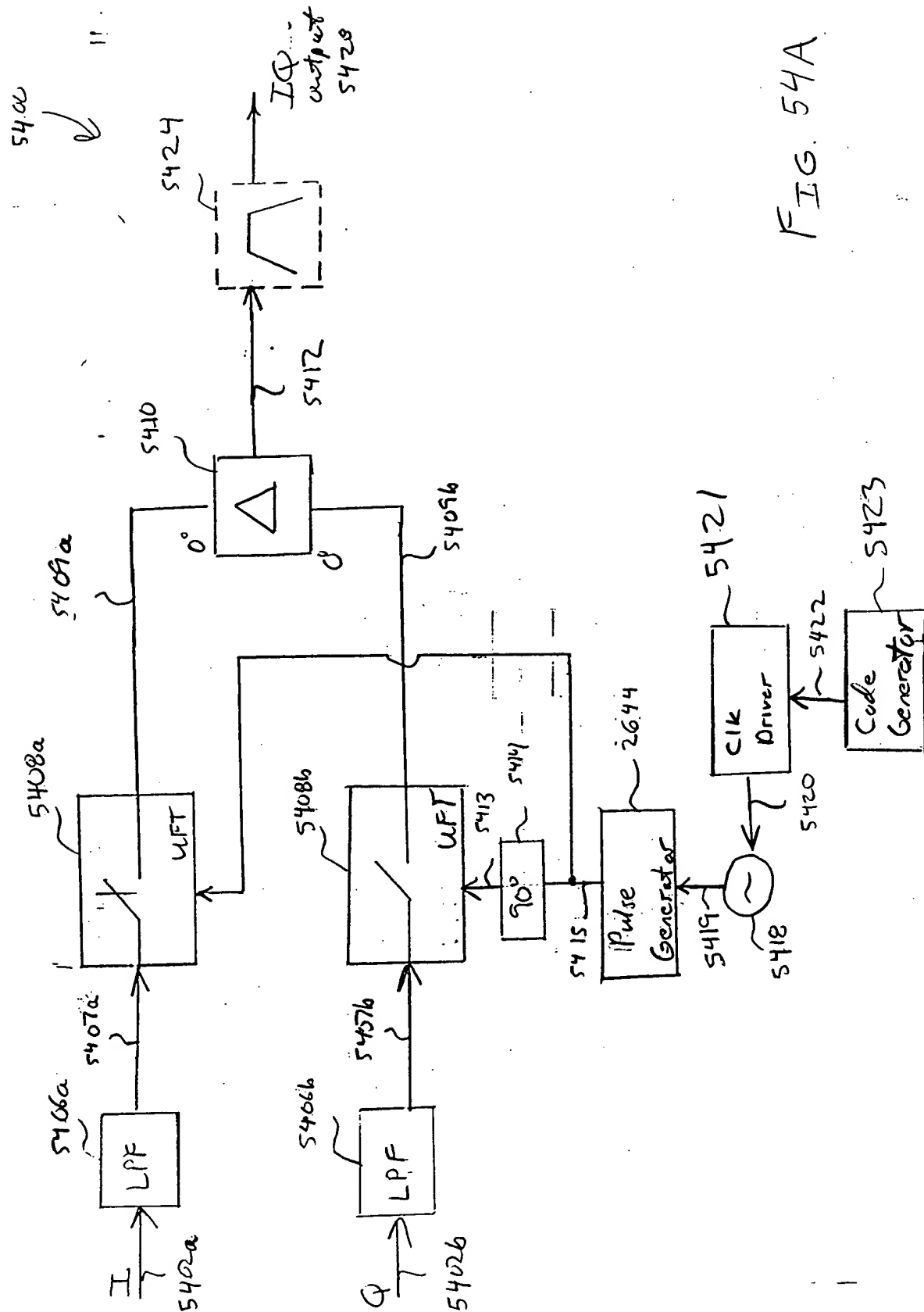


FIG. 54A

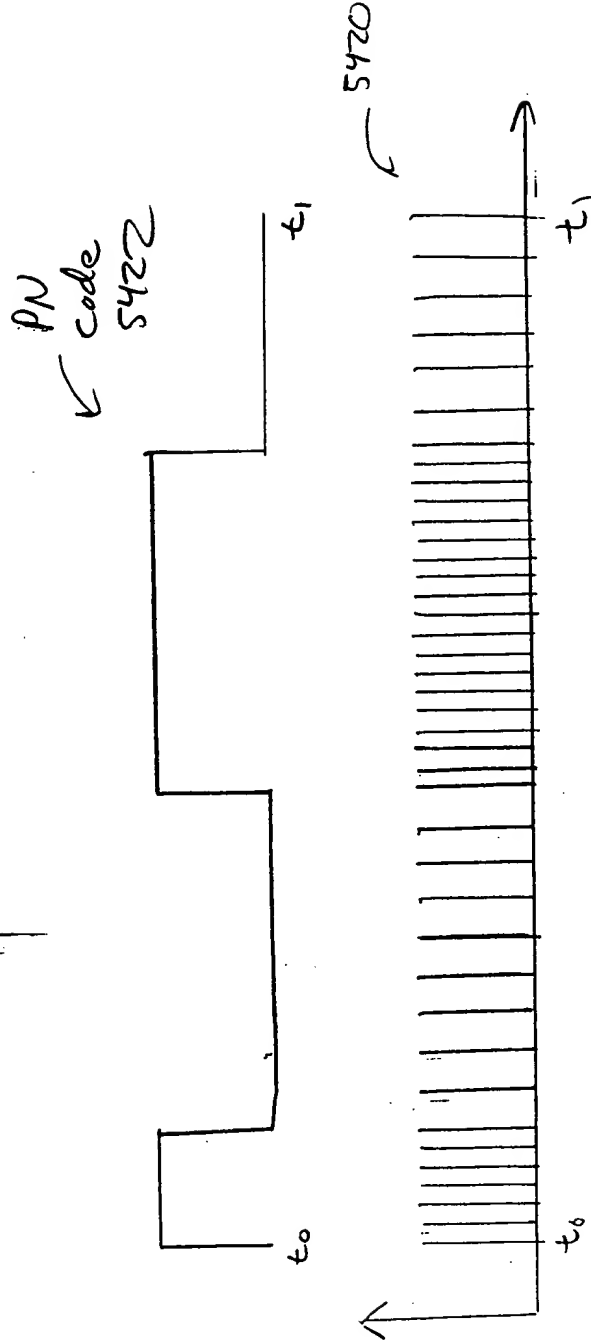
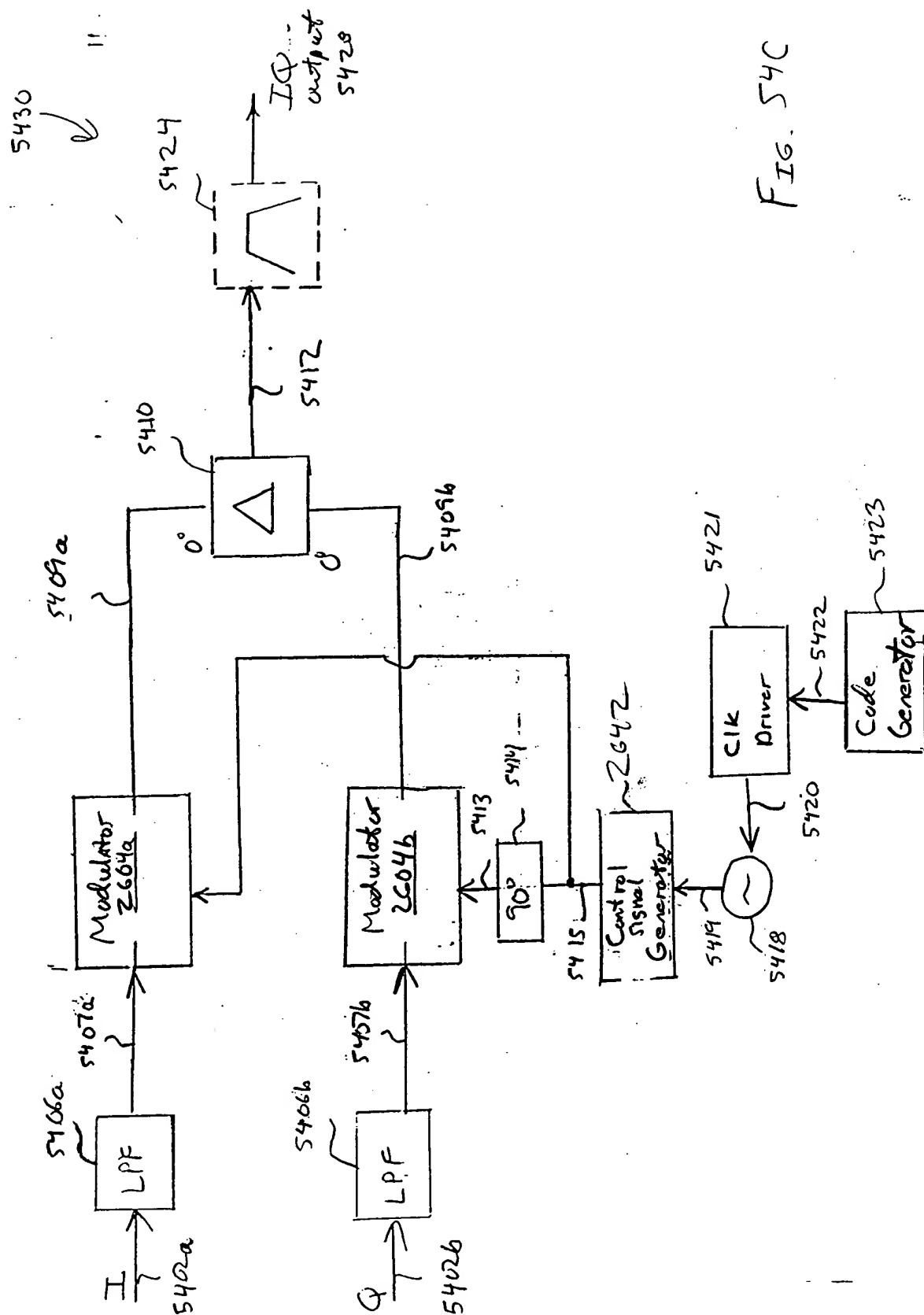


FIG. 54B



001100 383650

55026

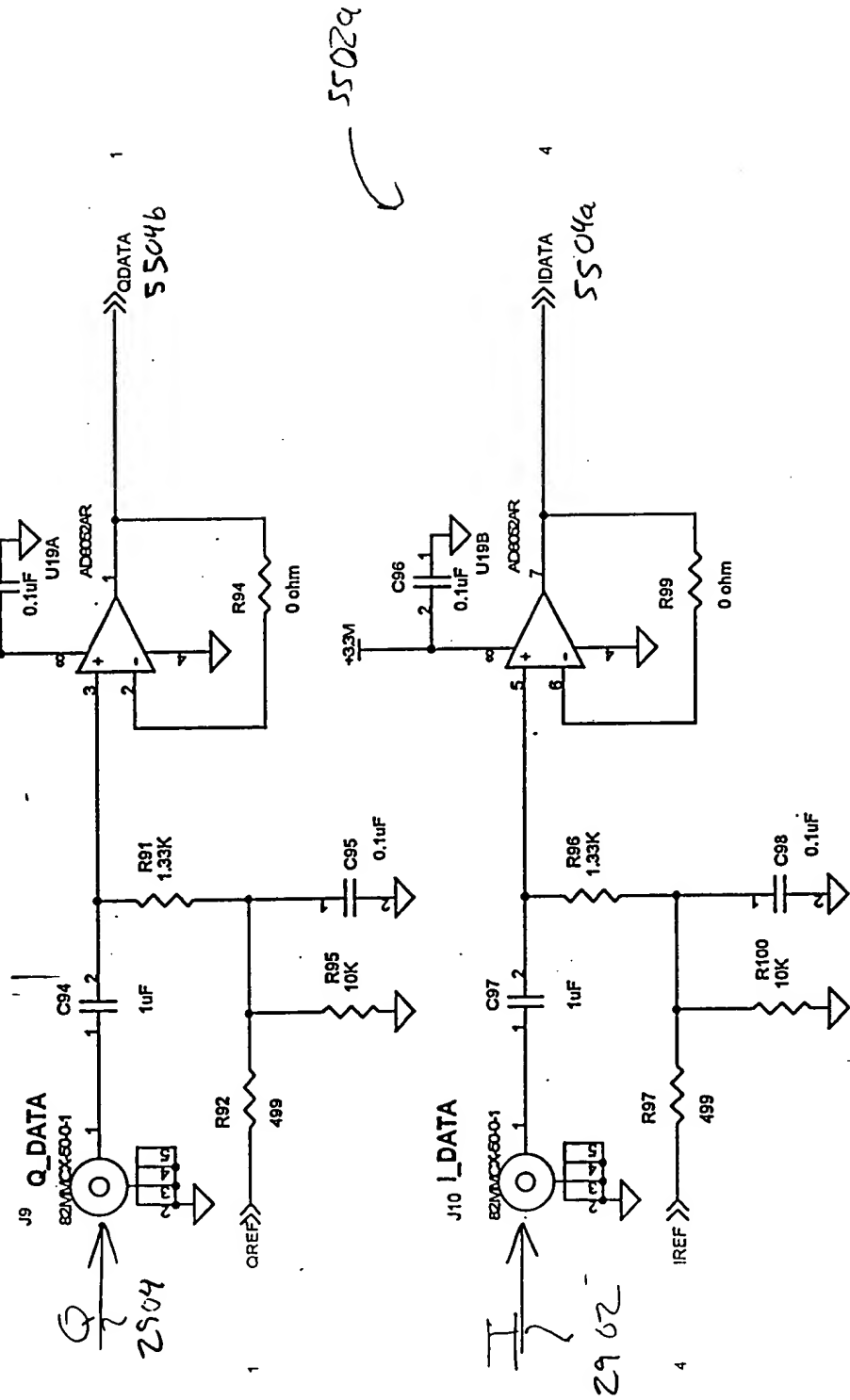
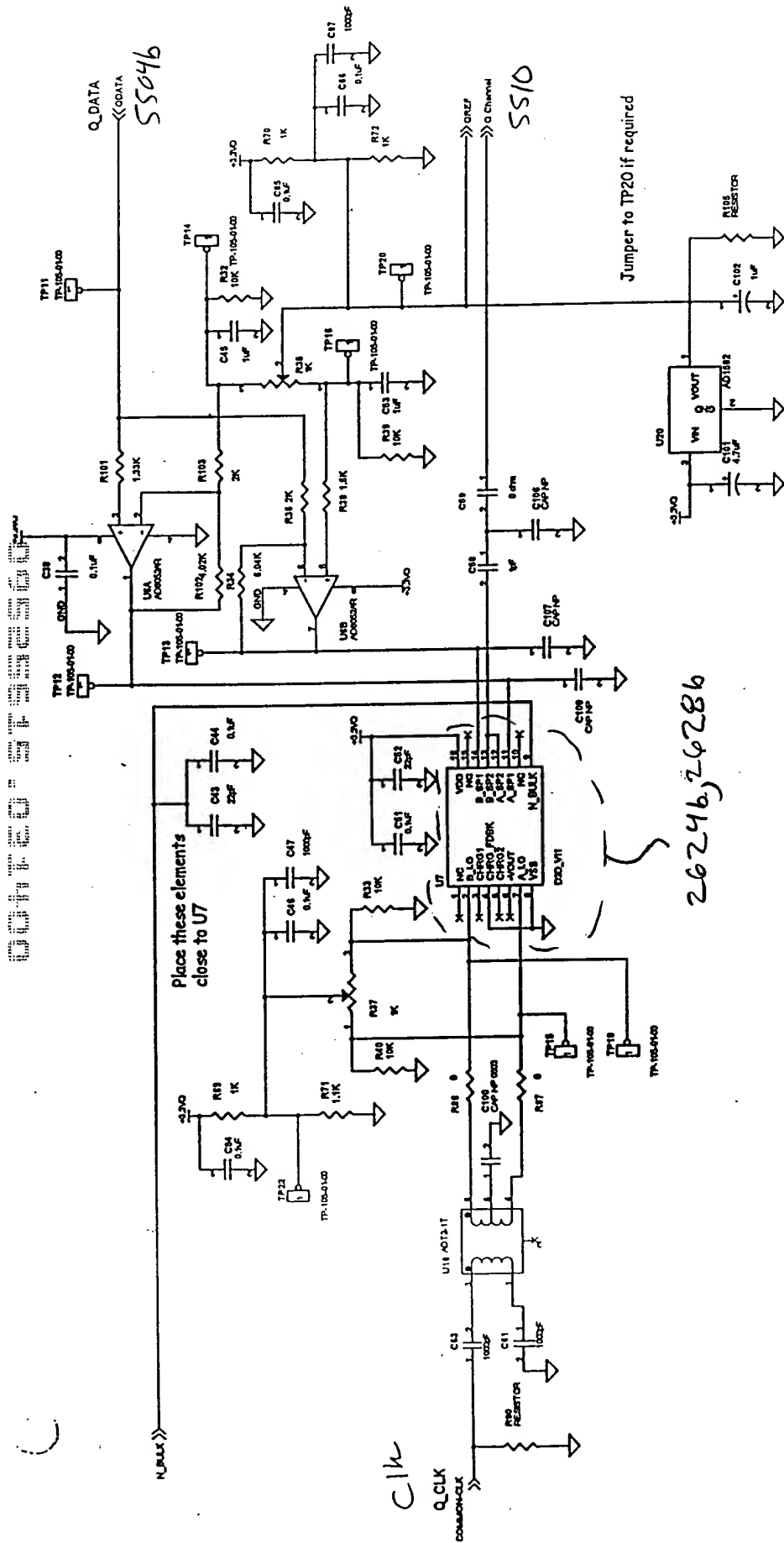


FIG. 55A





Q Channel

SS08



004760 37300000

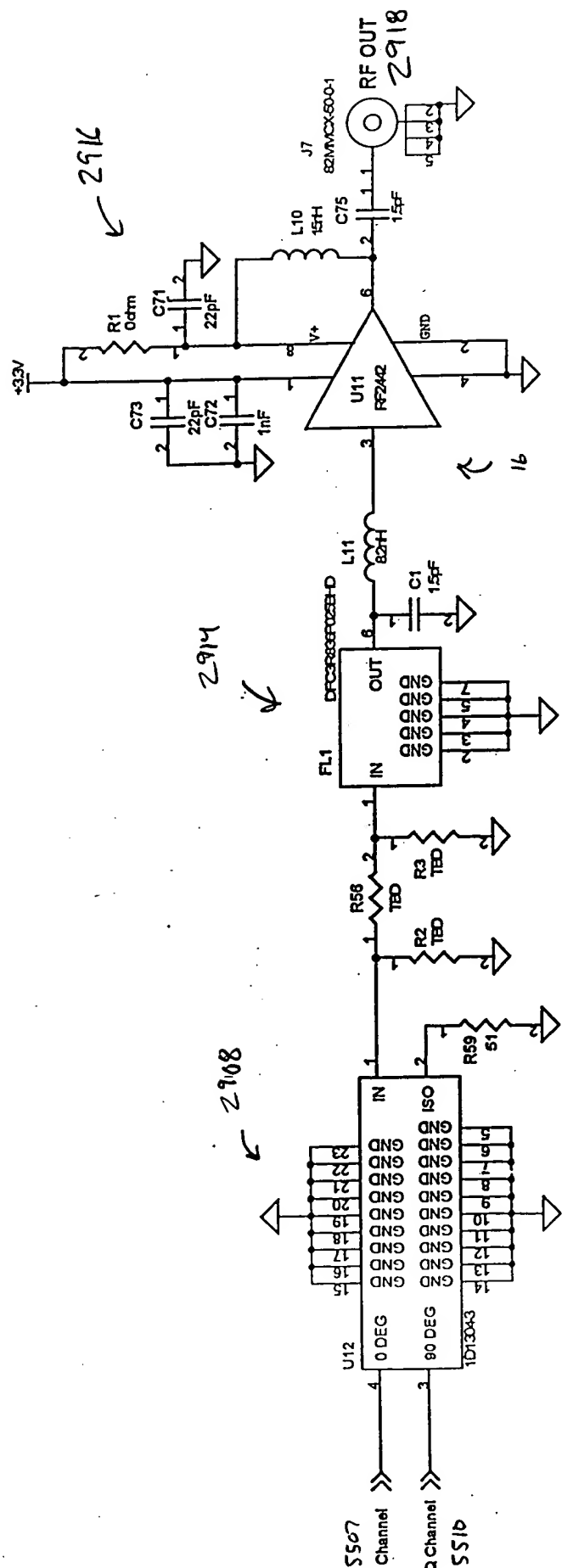


FIG 550

5600

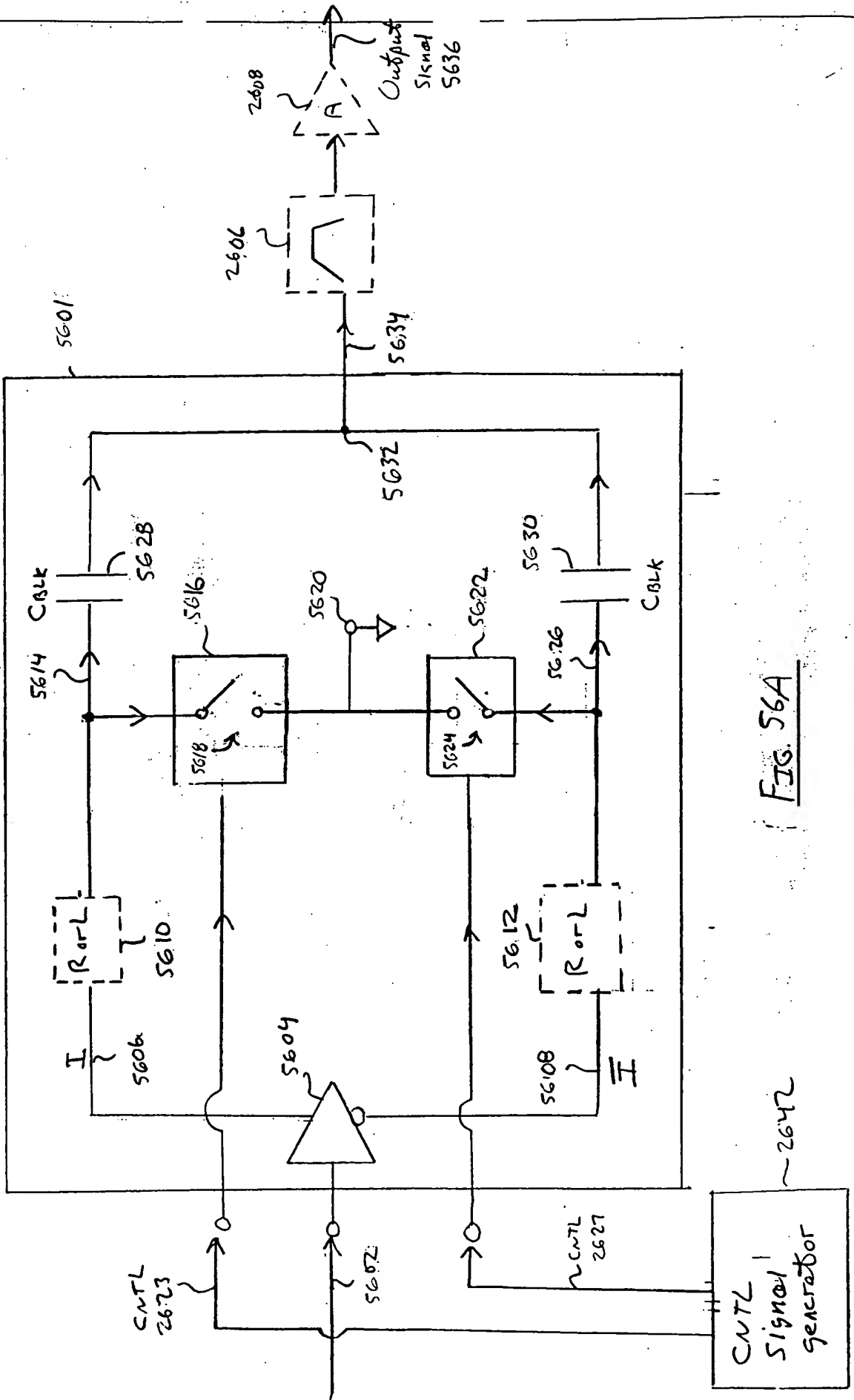


FIG. 56A





5600

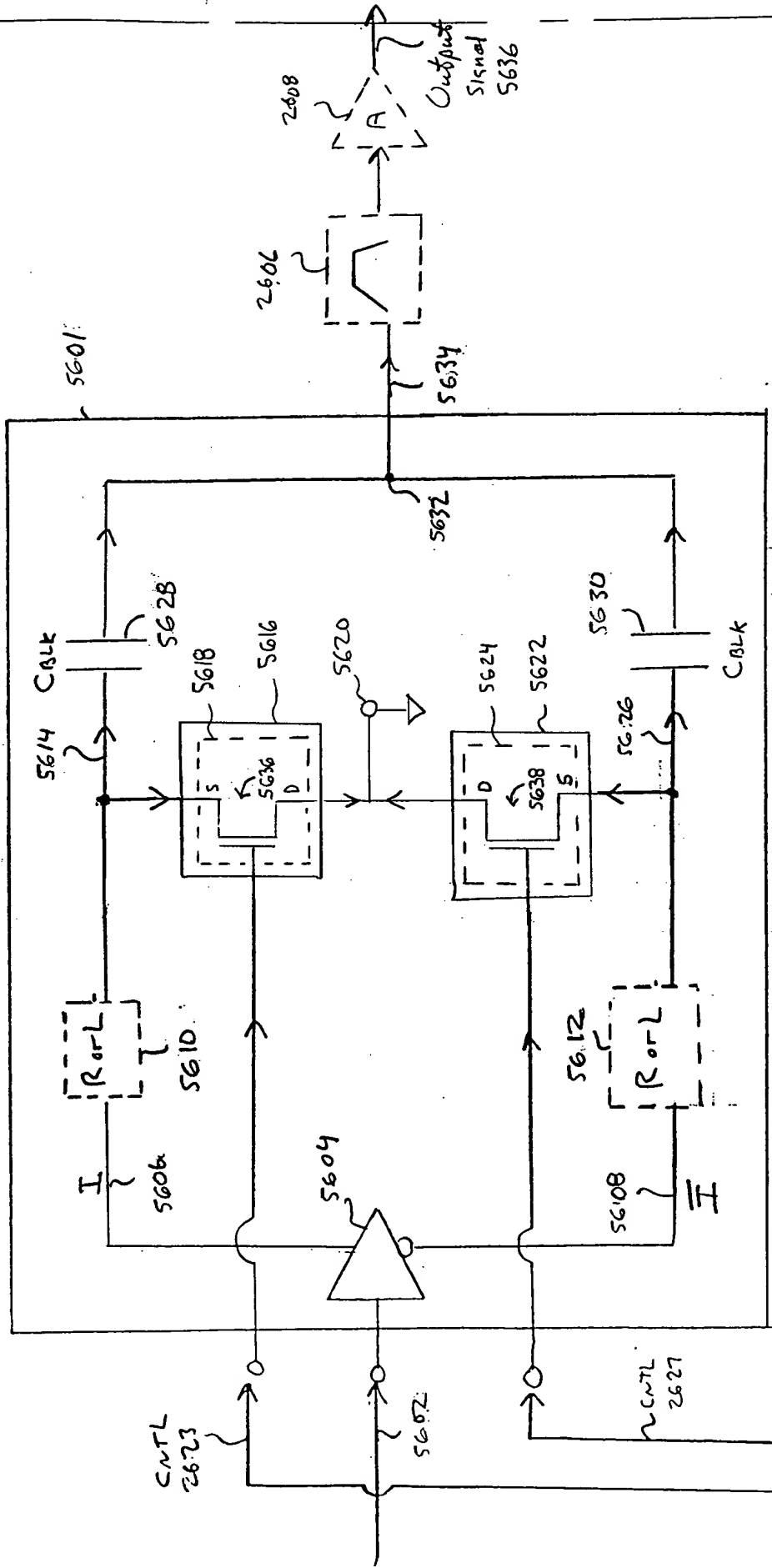


Fig. 56D

5701

5702

5703

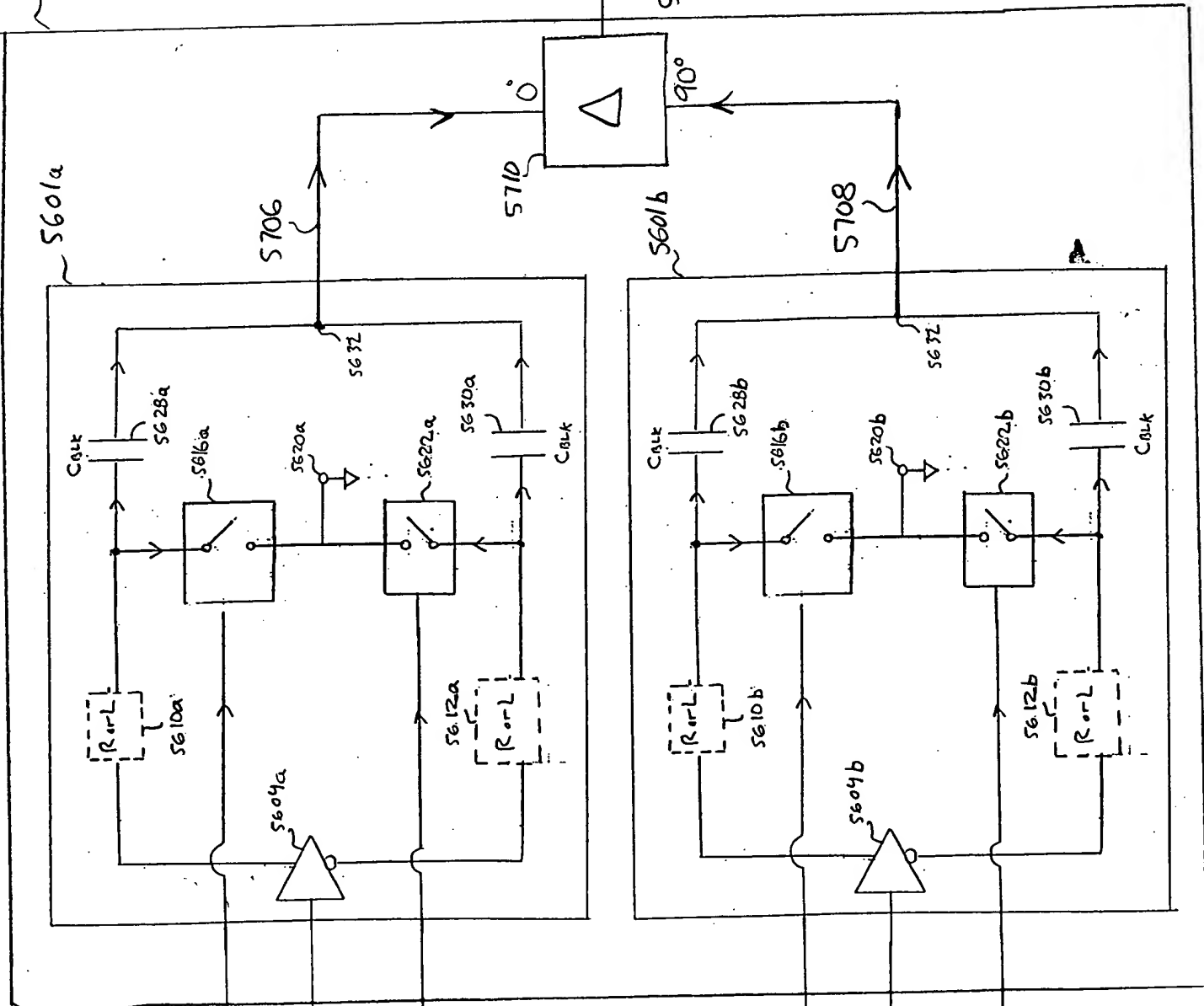


FIG. 57

CNTL 2623

I baseband 5702

CNTL 2627

CNTL 2623

Q baseband 5704

CNTL 2627



5900

5902

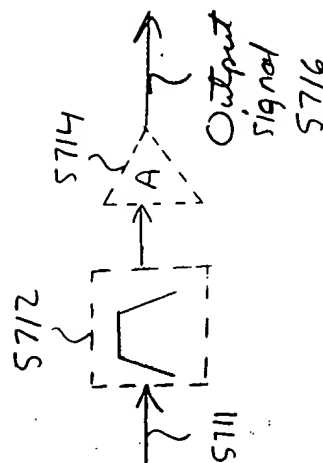
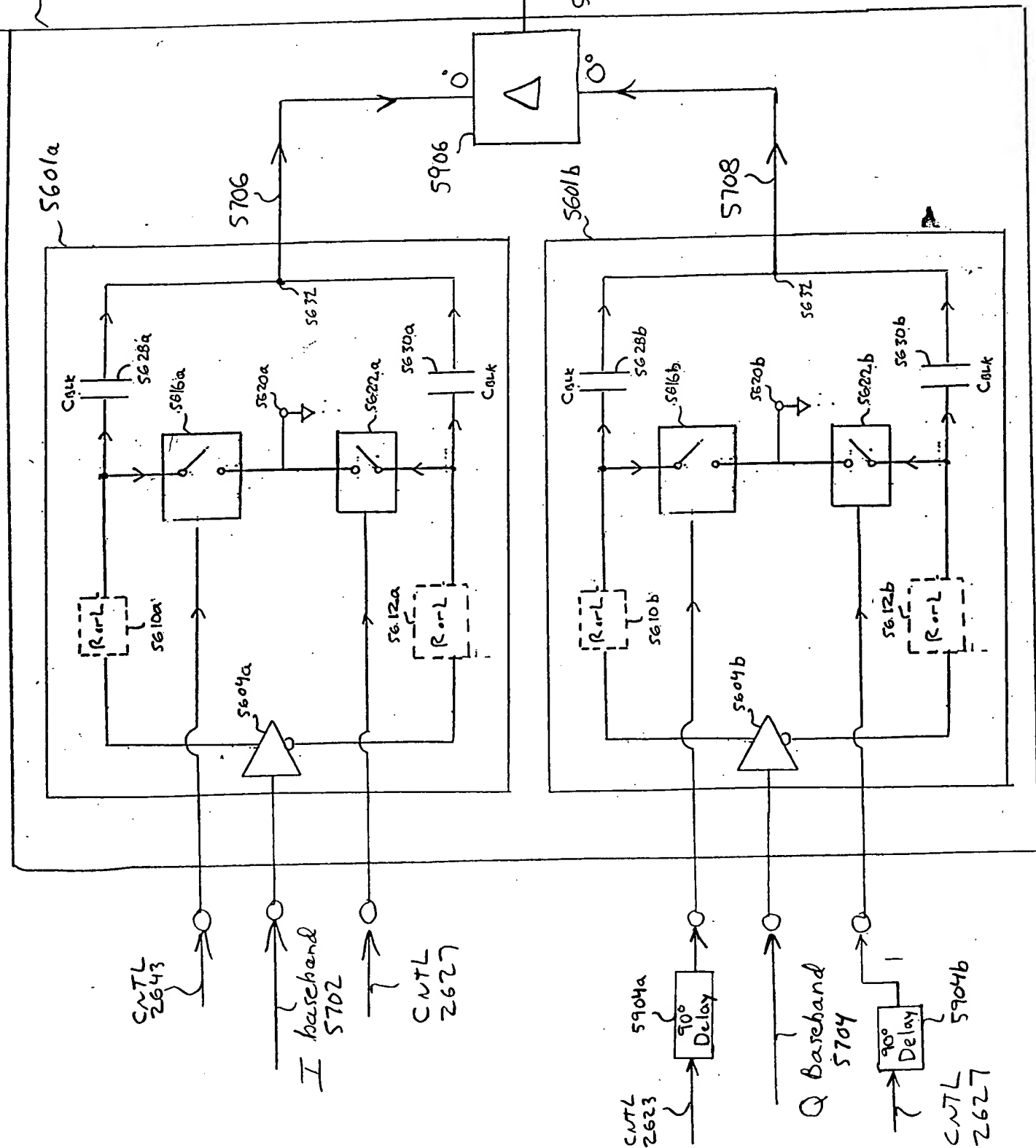


FIG. 59





DATA BUS

6000

6002

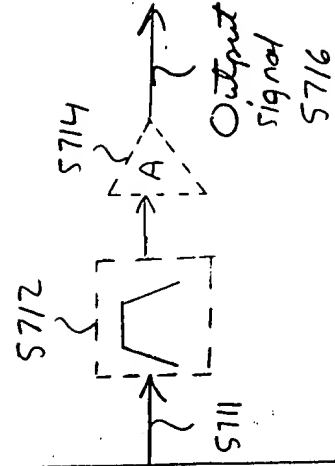
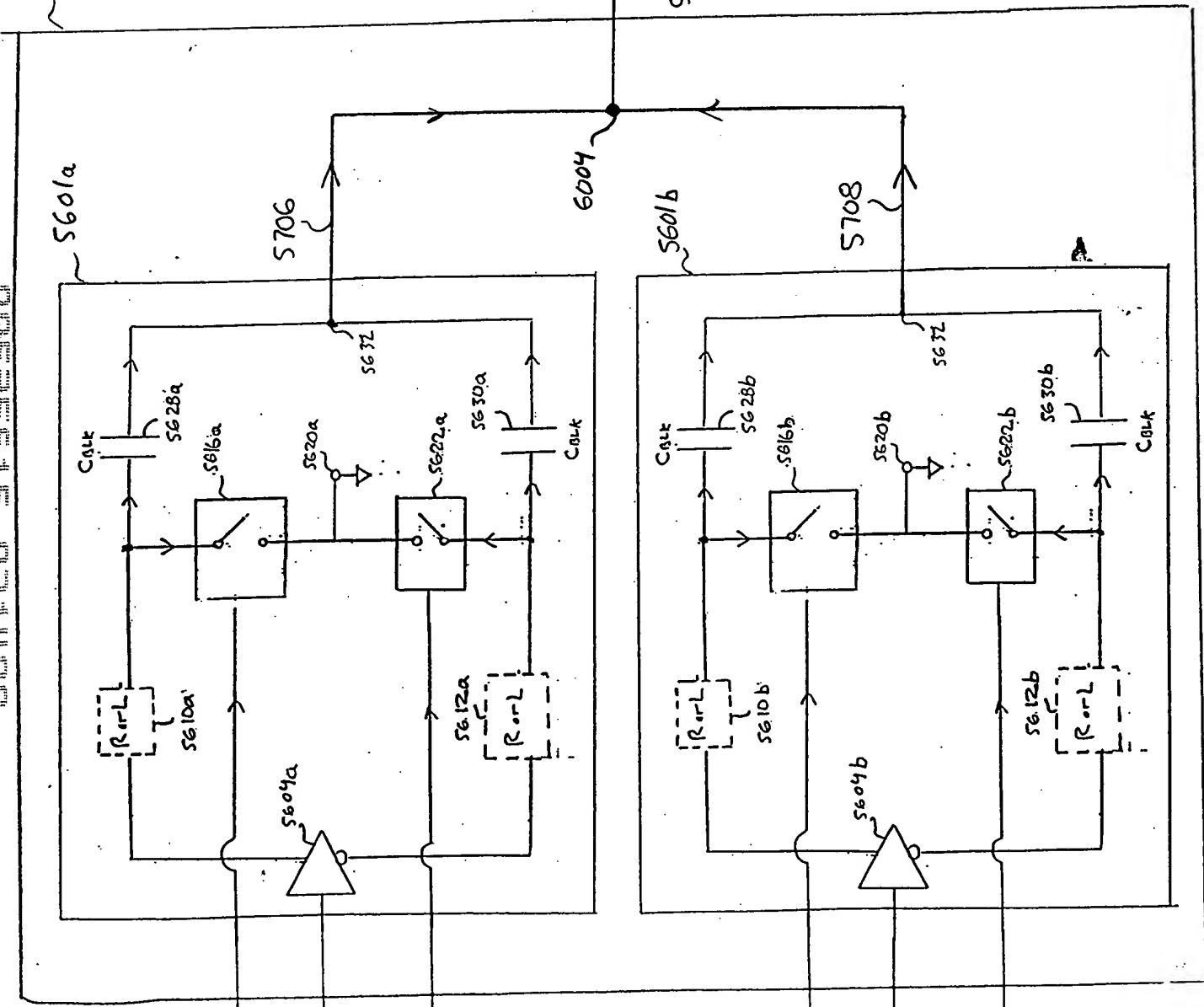


FIG. 60

CNTL 2643

I baseband 5702

CNTL 2627

CNTL 2623

90° Delay 5904a

Q Baseband 5704

CNTL 2627

90° Delay 5904b

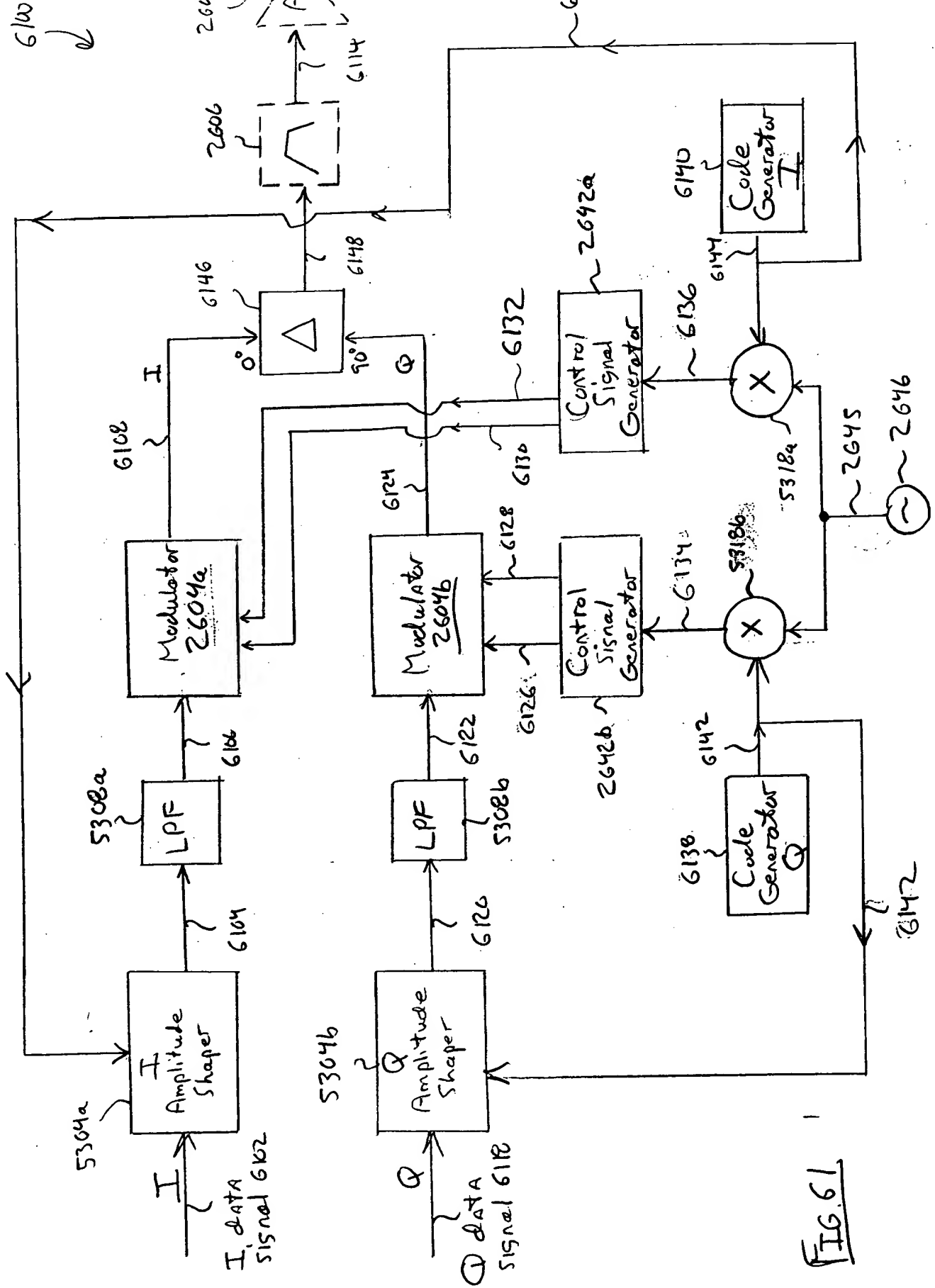


FIG. 61

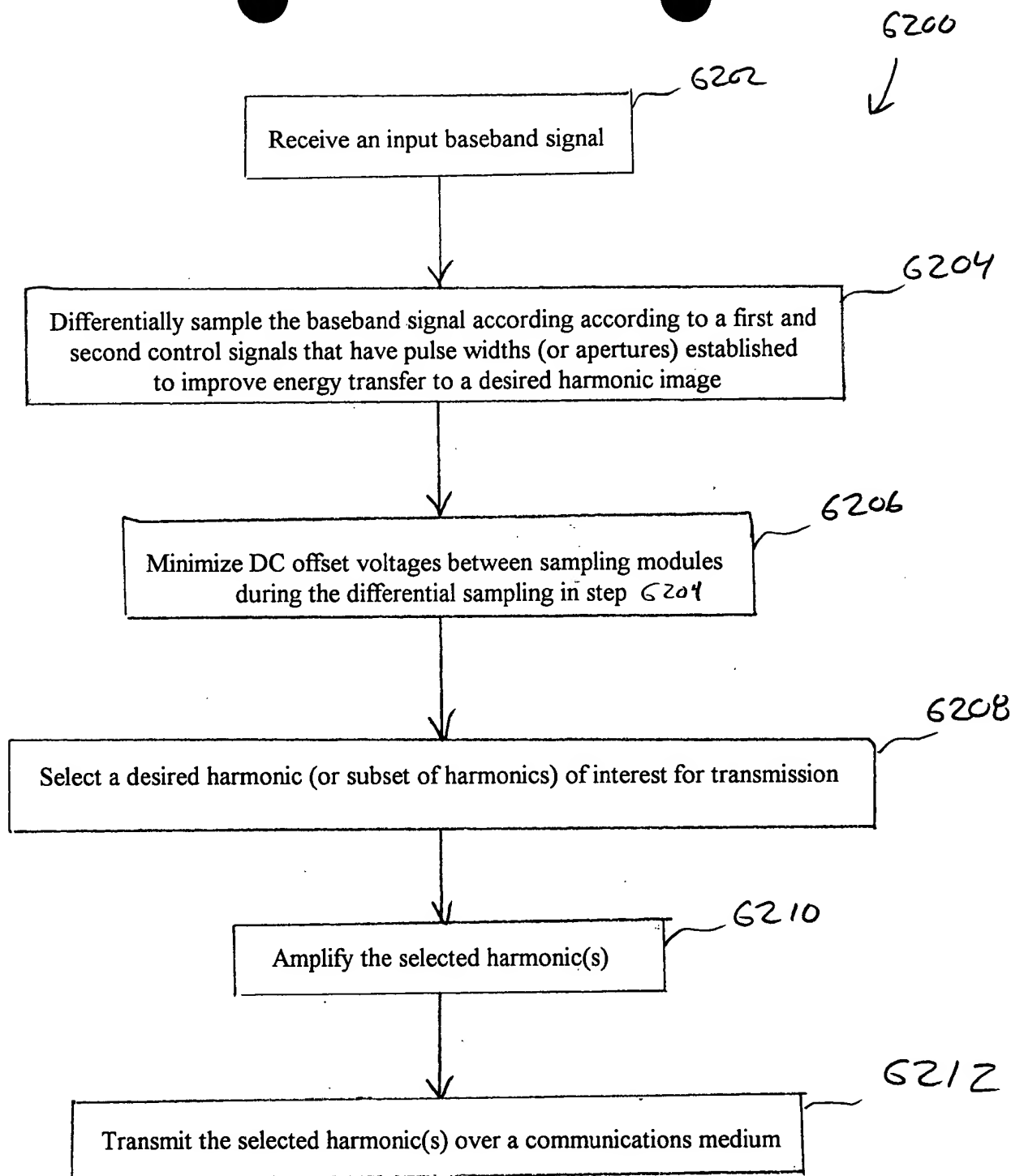


FIG. 62

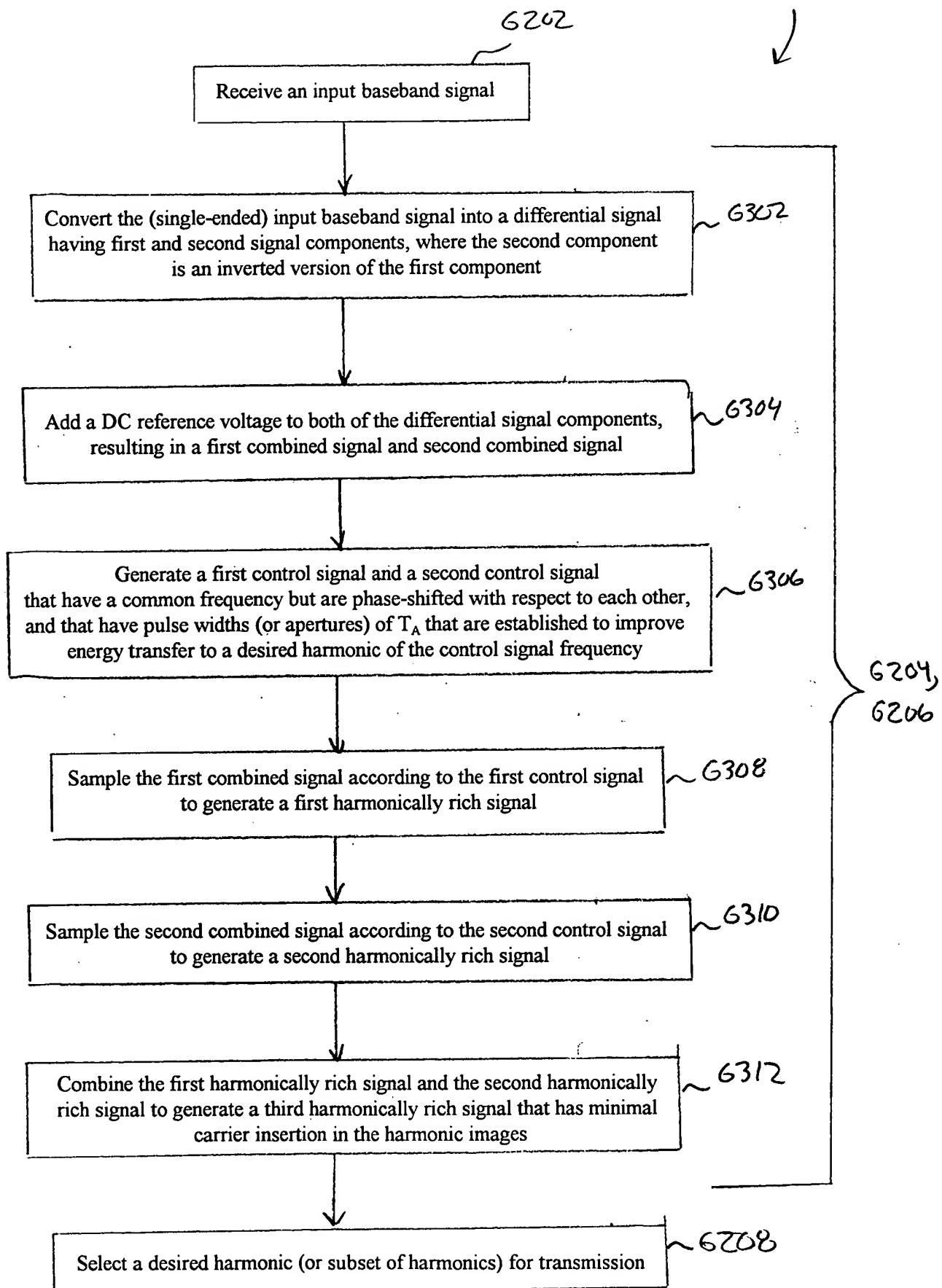


FIG. 63

6400  
↓

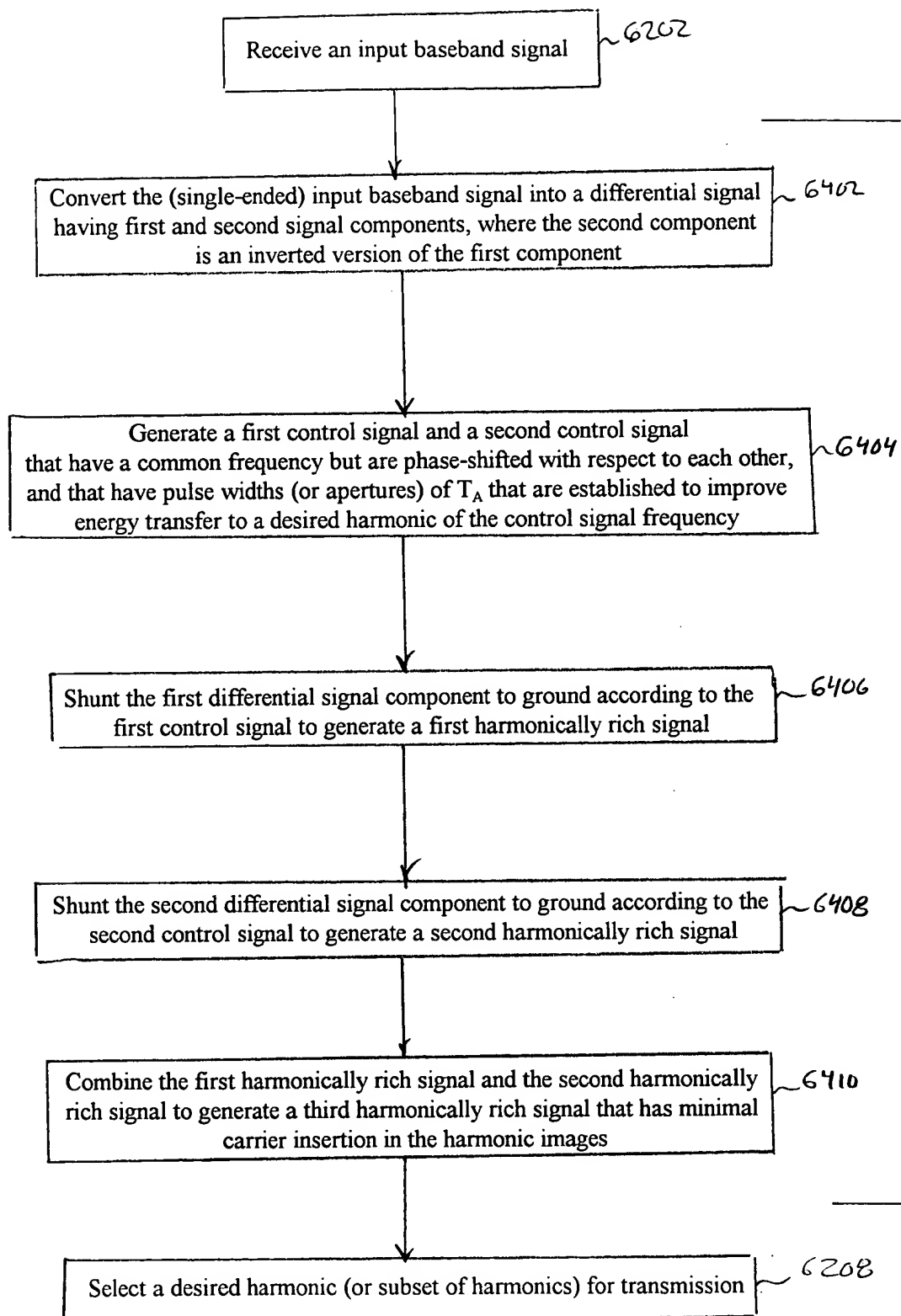


FIG. 64

6500  
↓

Receive an I baseband signal and a Q baseband signal ~ 6502

Differentially sample the I baseband signal according to a first and second control signals that have pulse widths (or apertures) established to improve energy transfer to a desired harmonic image in the resulting I harmonically rich signal ~ 6504

Differentially sample the Q baseband signal according to a first and second control signals that have pulse widths (or apertures) established to improve energy transfer to a desired harmonic image in the resulting Q harmonically rich signal ~ 6506

Minimize DC offset voltages between sampling modules during the differential sampling steps ~ 6508

Combine the I harmonically rich signal and the Q harmonically rich signal to generate an IQ harmonically rich signal ~ 6510

Select a desired harmonic (or subset of harmonics) of interest for transmission ~ 6512

Amplify the selected harmonic(s) ~ 6514

Transmit the selected harmonic(s) over a communications medium ~ 6516

FIG. 65

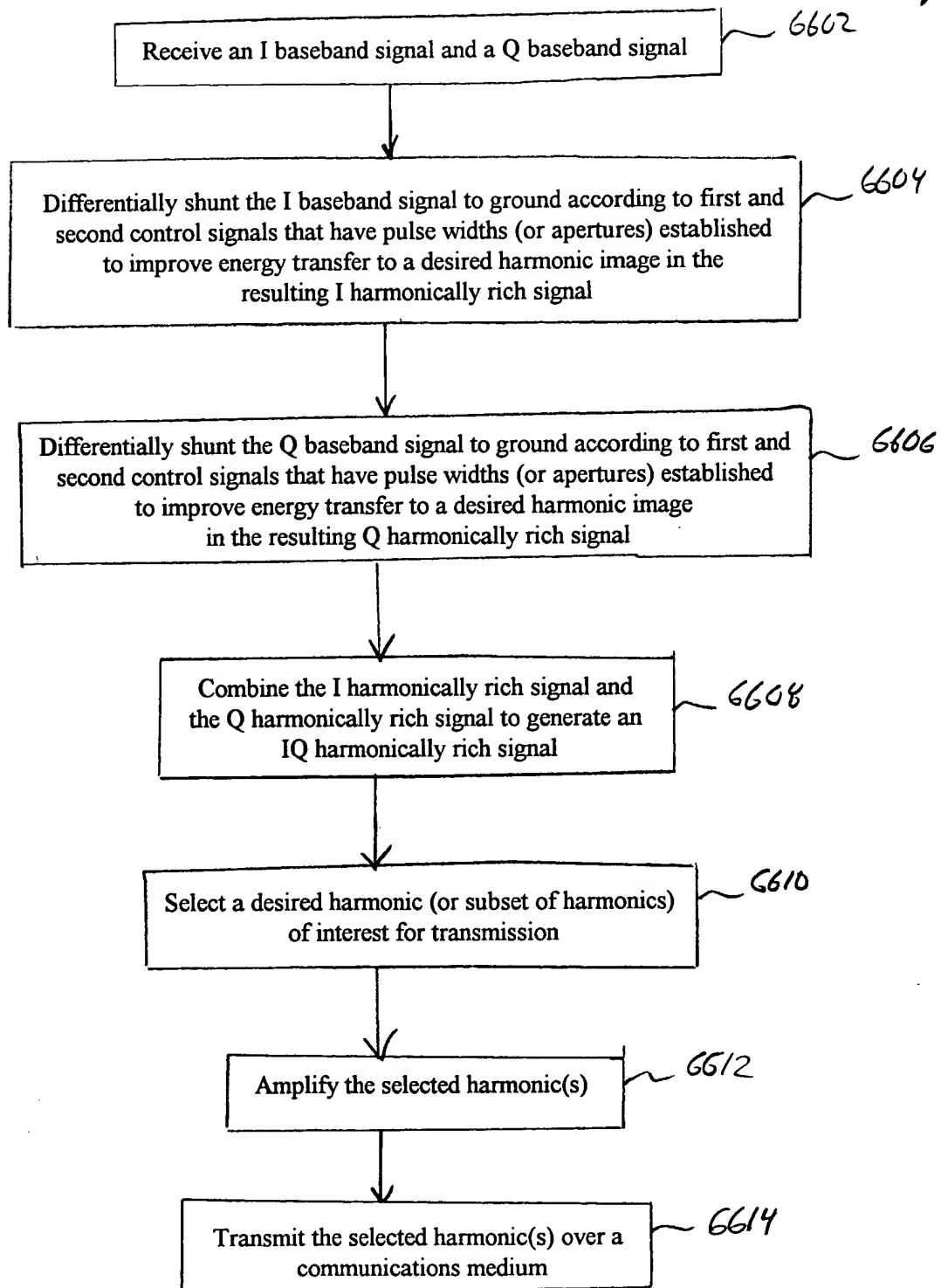
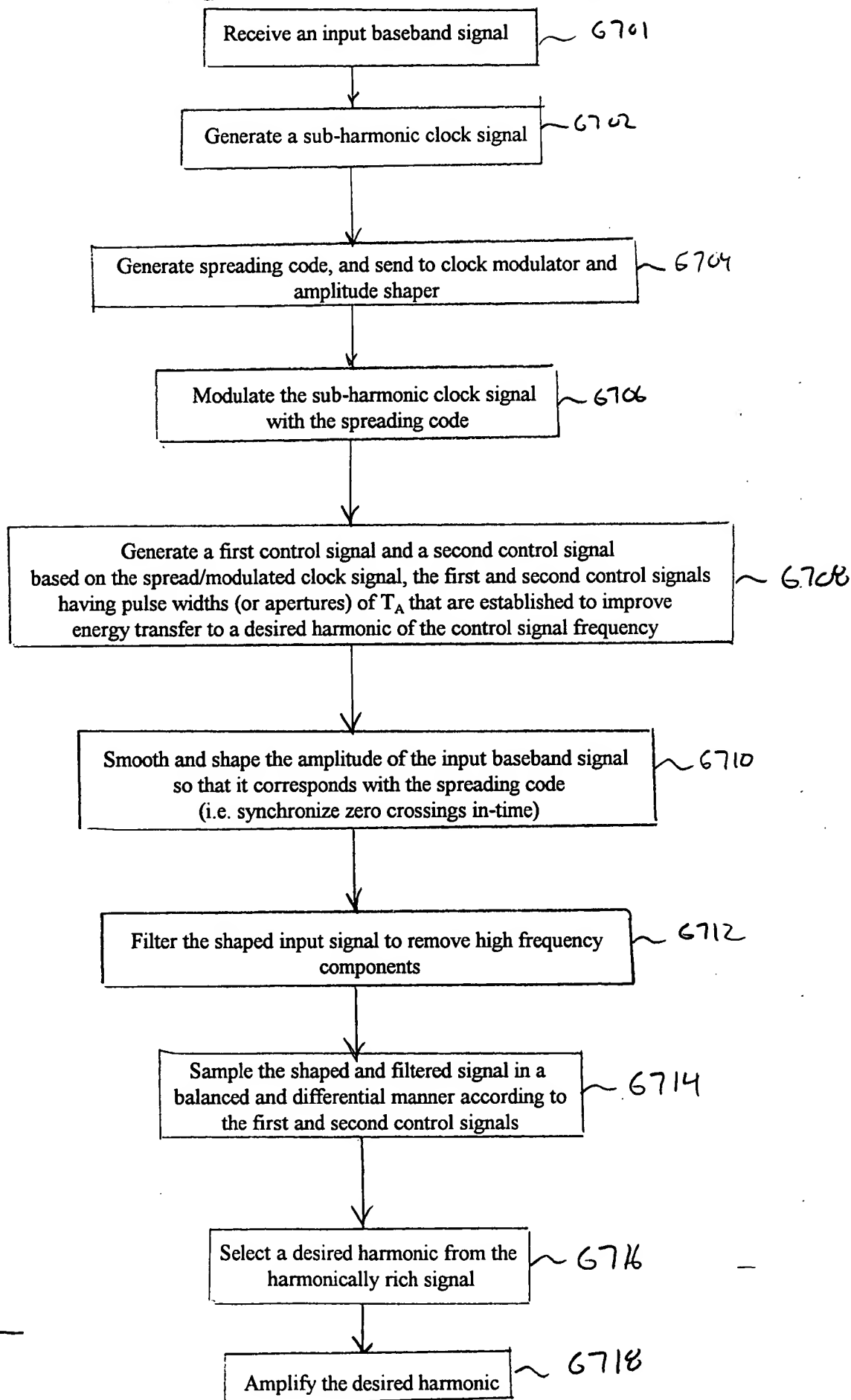


FIG. 66

6700  
↓



6700 6701 6702 6704 6706 6708 6710 6712 6714 6716 6718

FIG. 67



6800  
↓

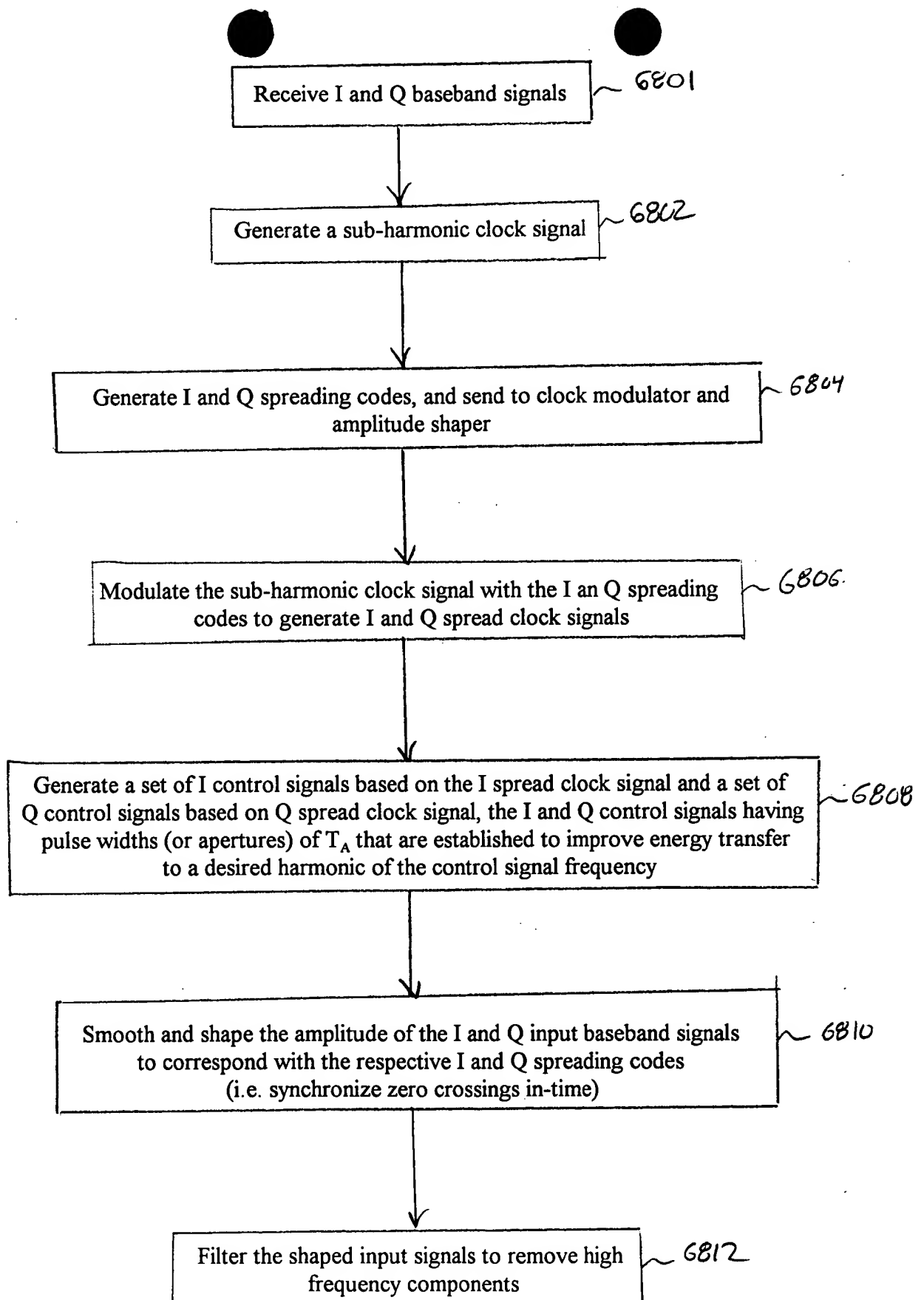
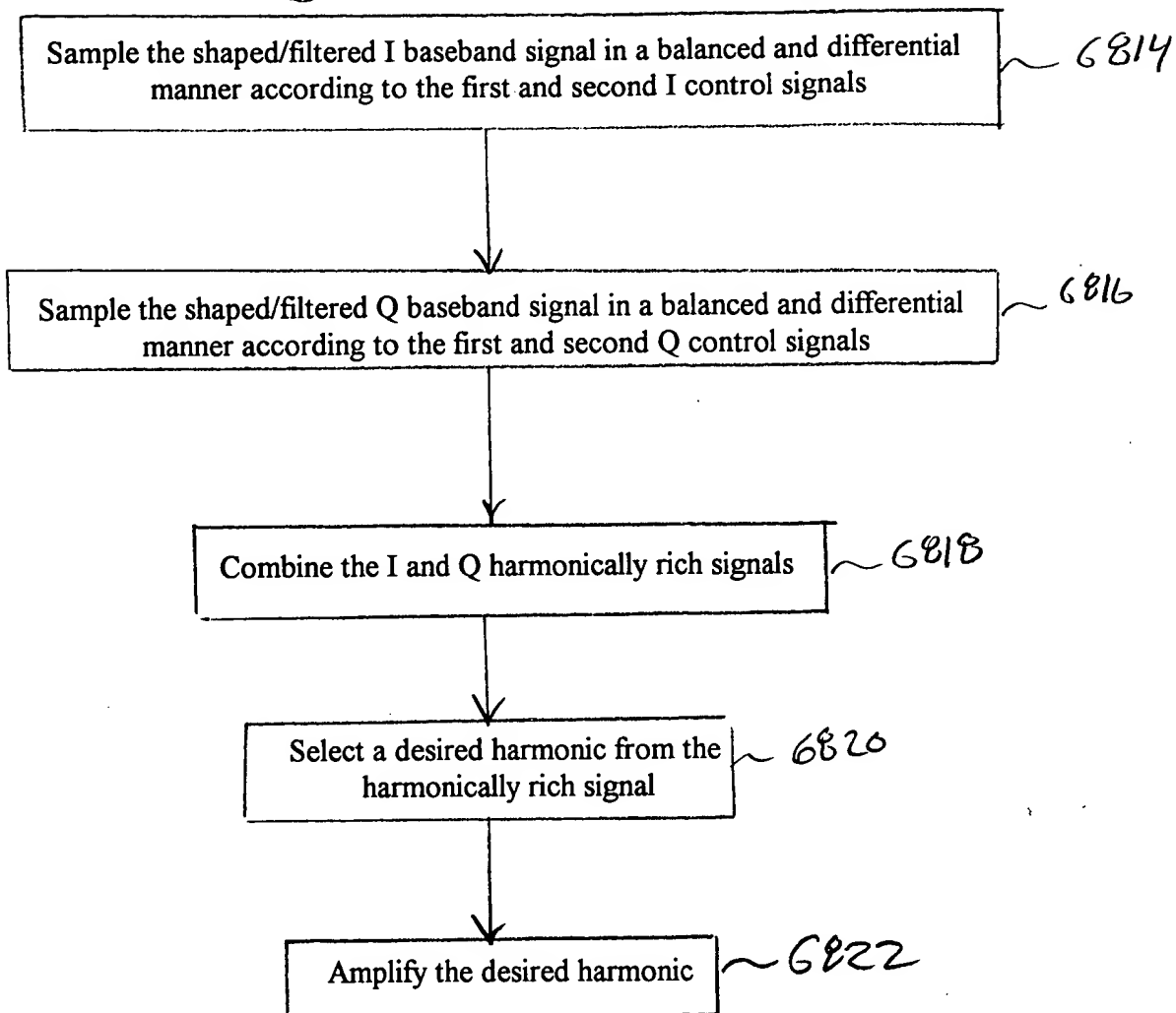


FIG. 680A

6810  
(cont.)



6810-6822

FIG. 68B

6900  
↓

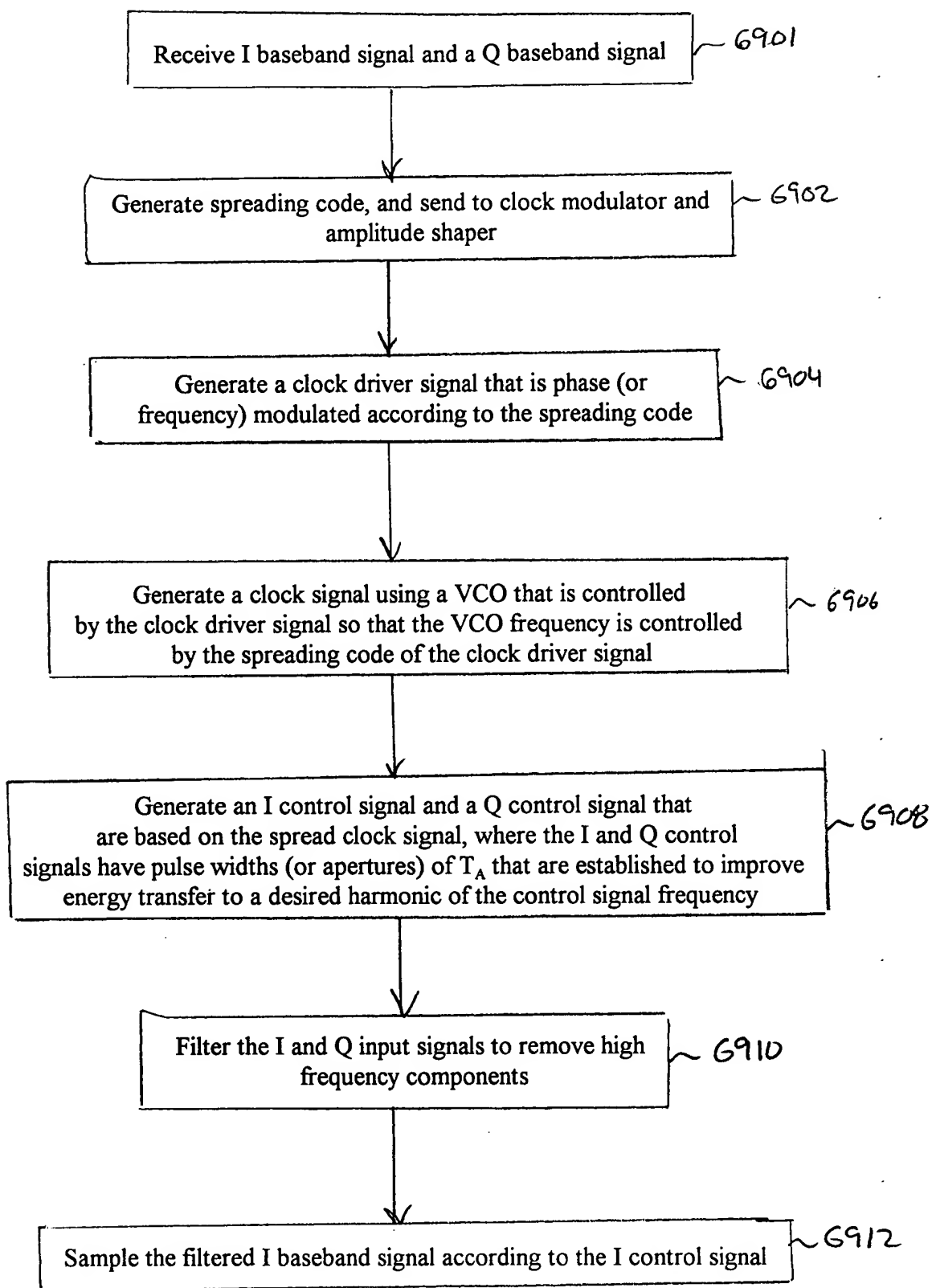


FIG. 69A

6900  
(cont.)

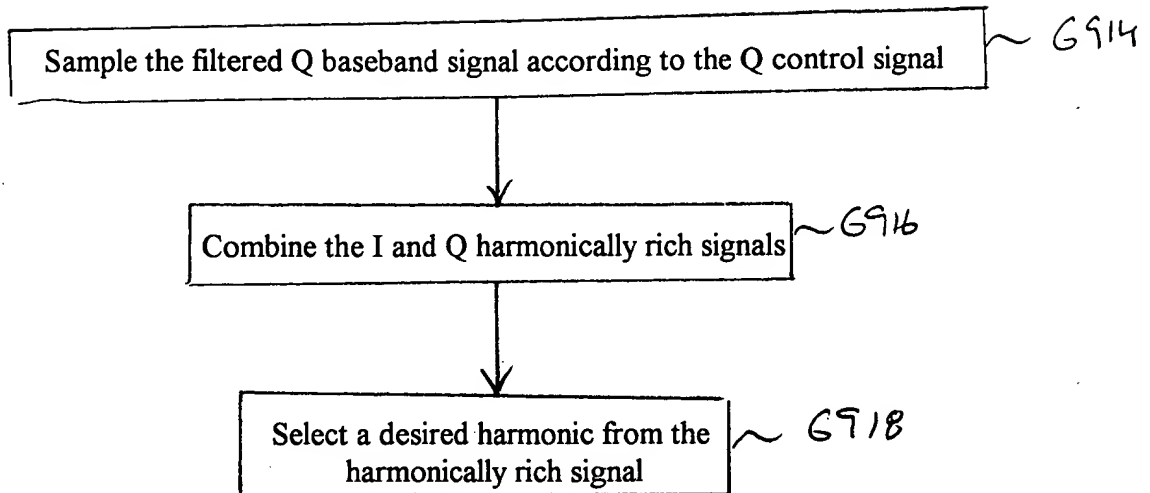


FIG. 6913

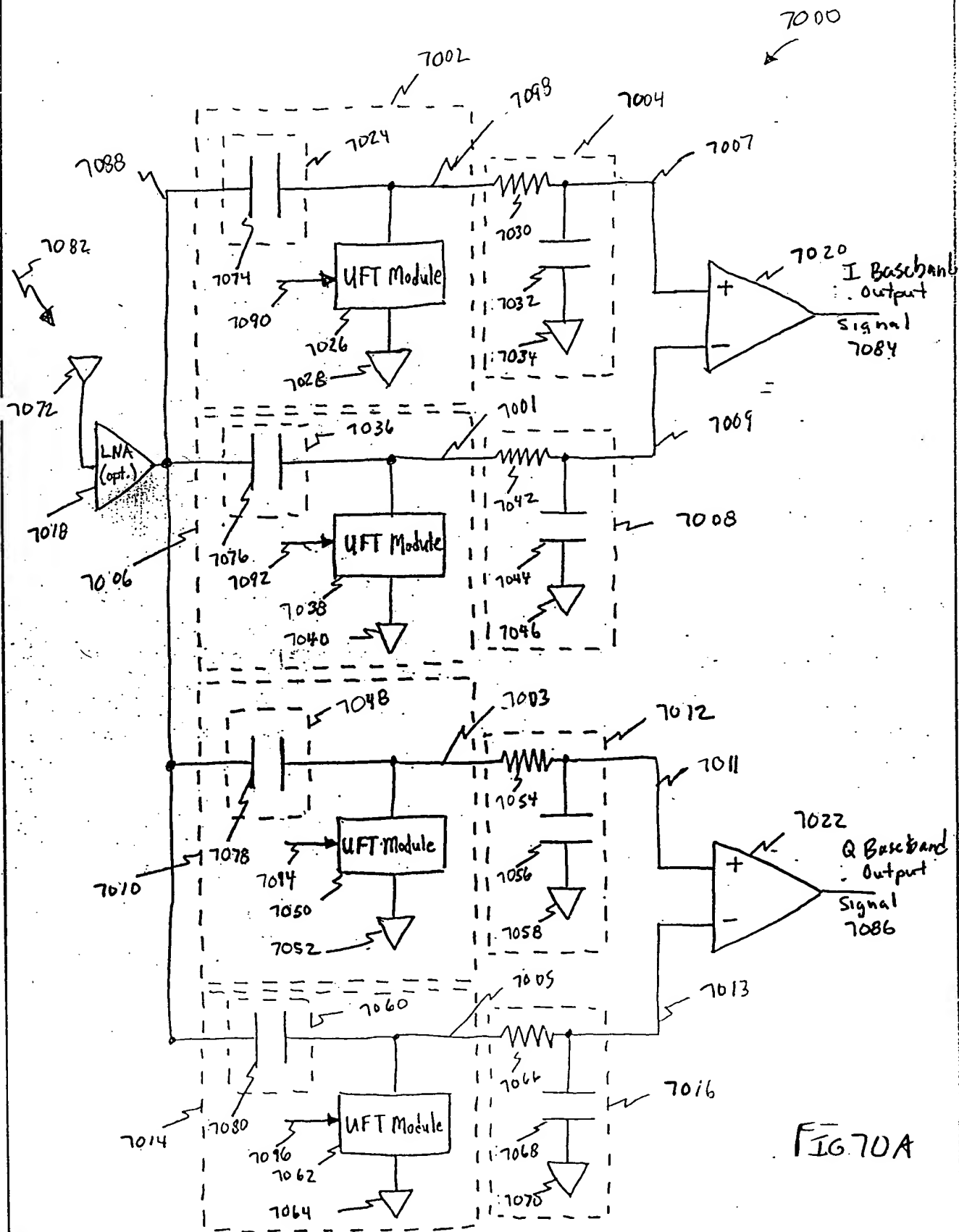


FIG. 70A

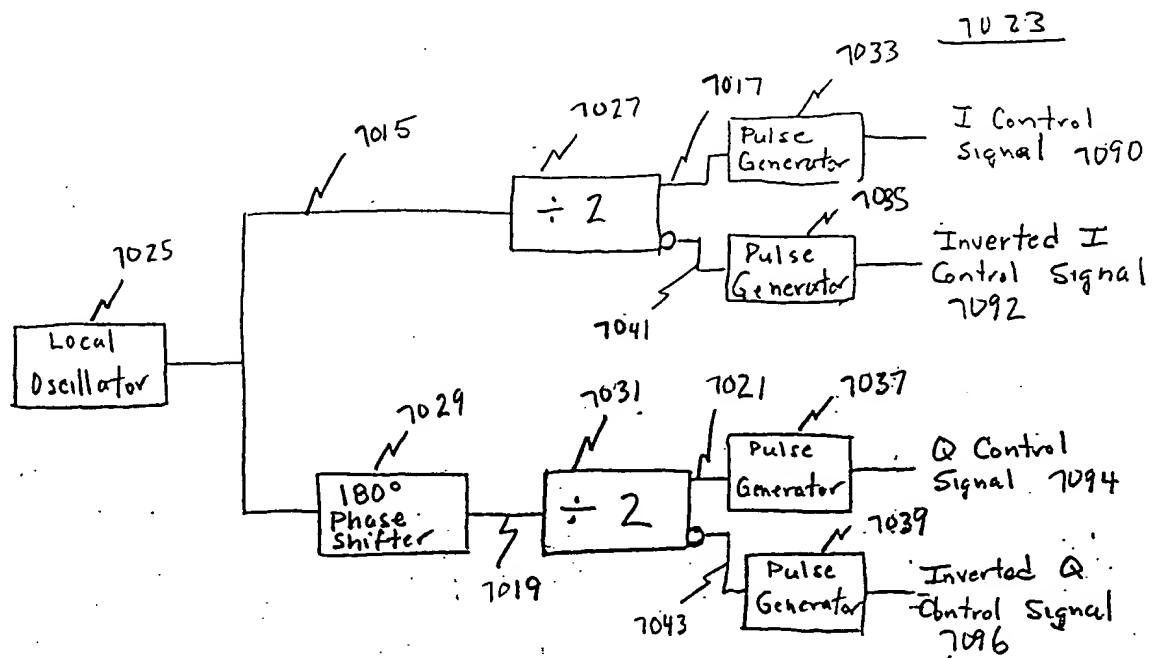


FIG. 70B

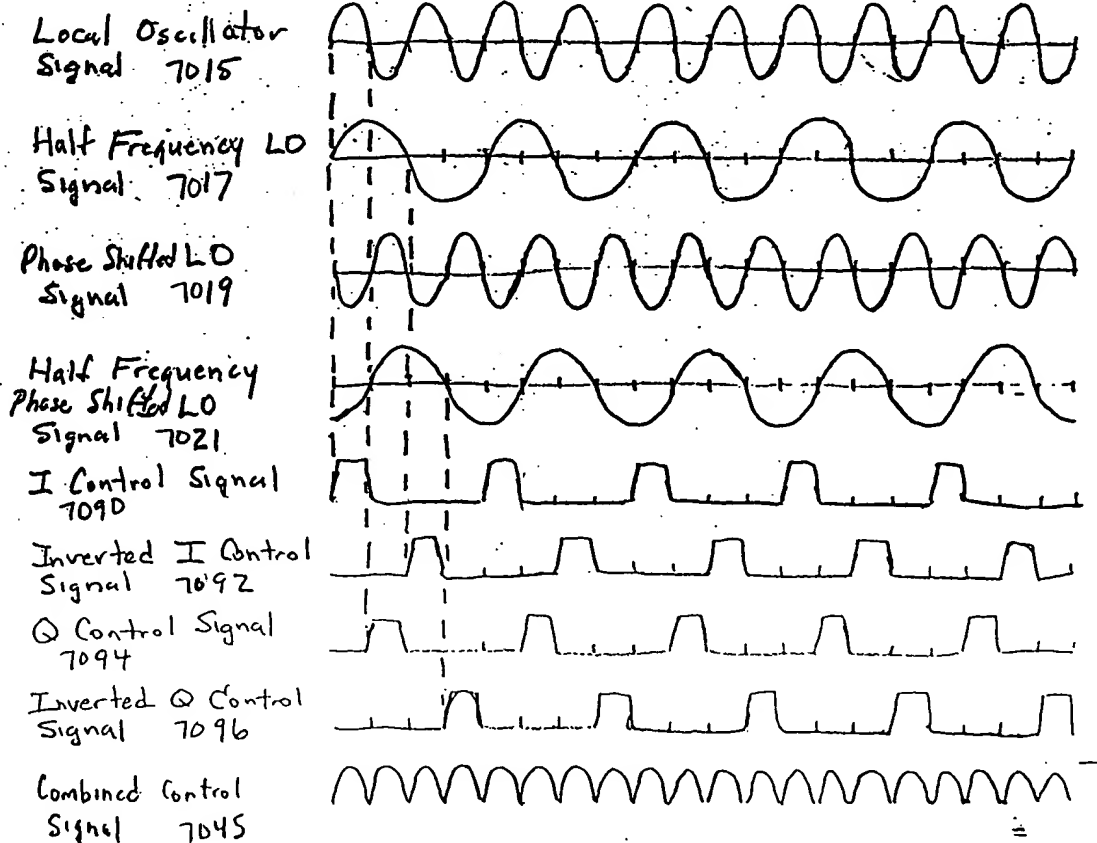


FIG. 70C

(A) IQDEMOD PULSE RELATIONSHIPS TO INPUT RF CARRIER

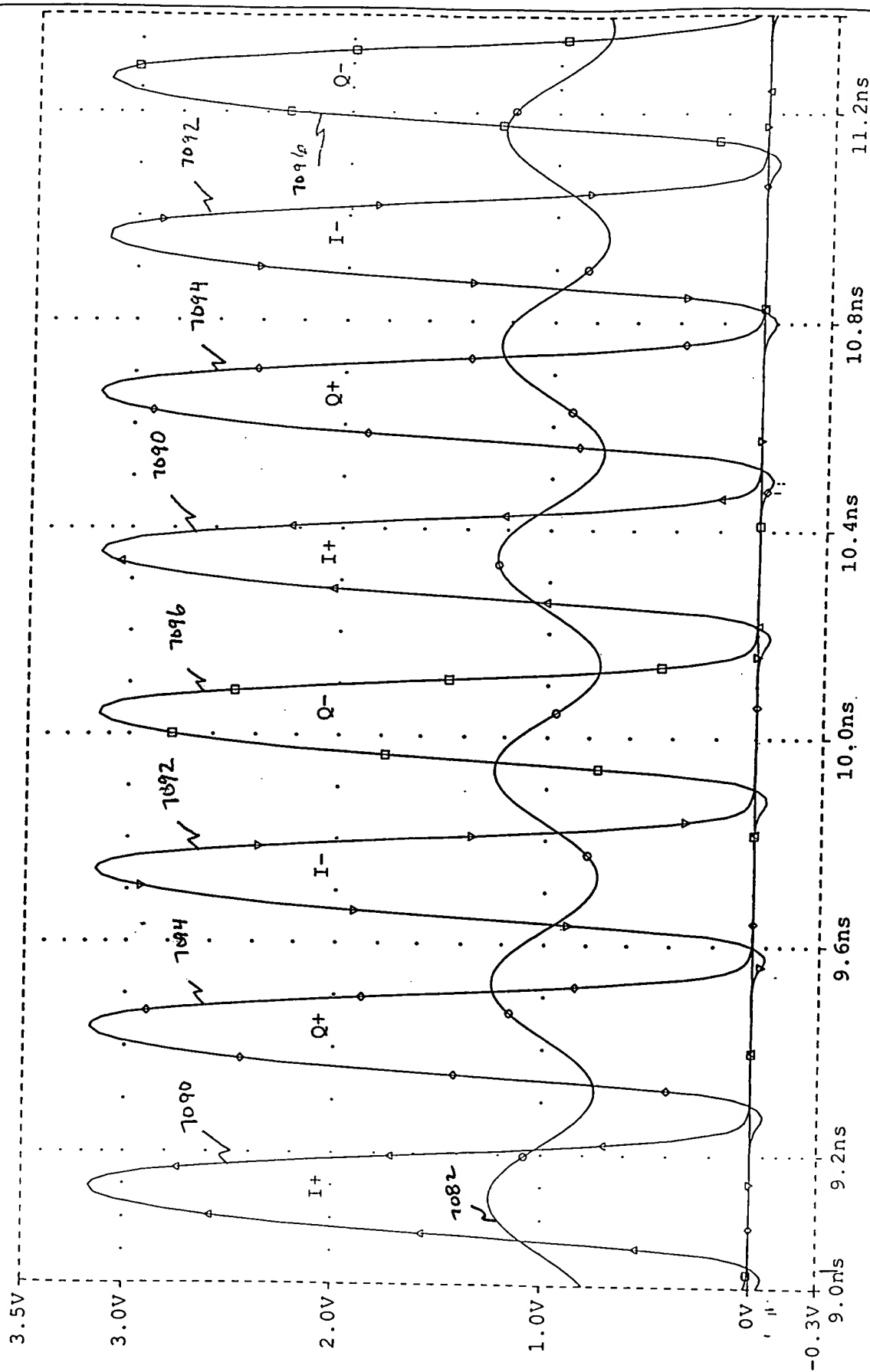


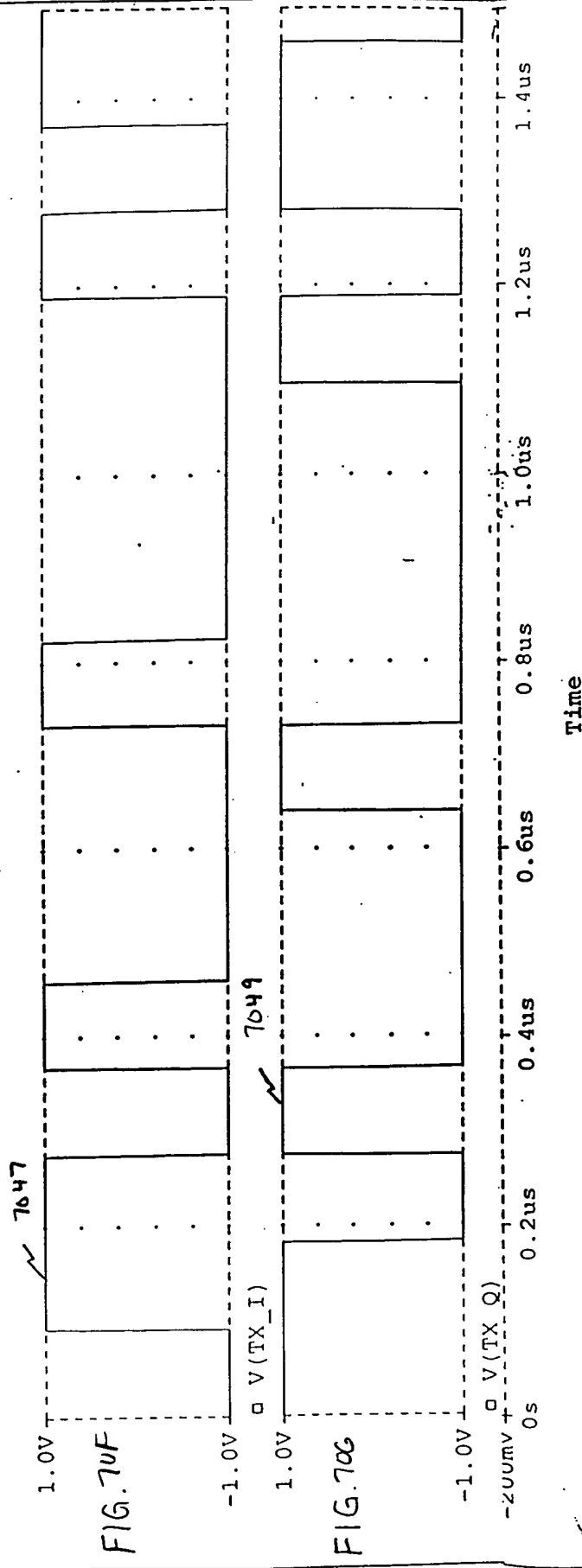
FIG. 70D



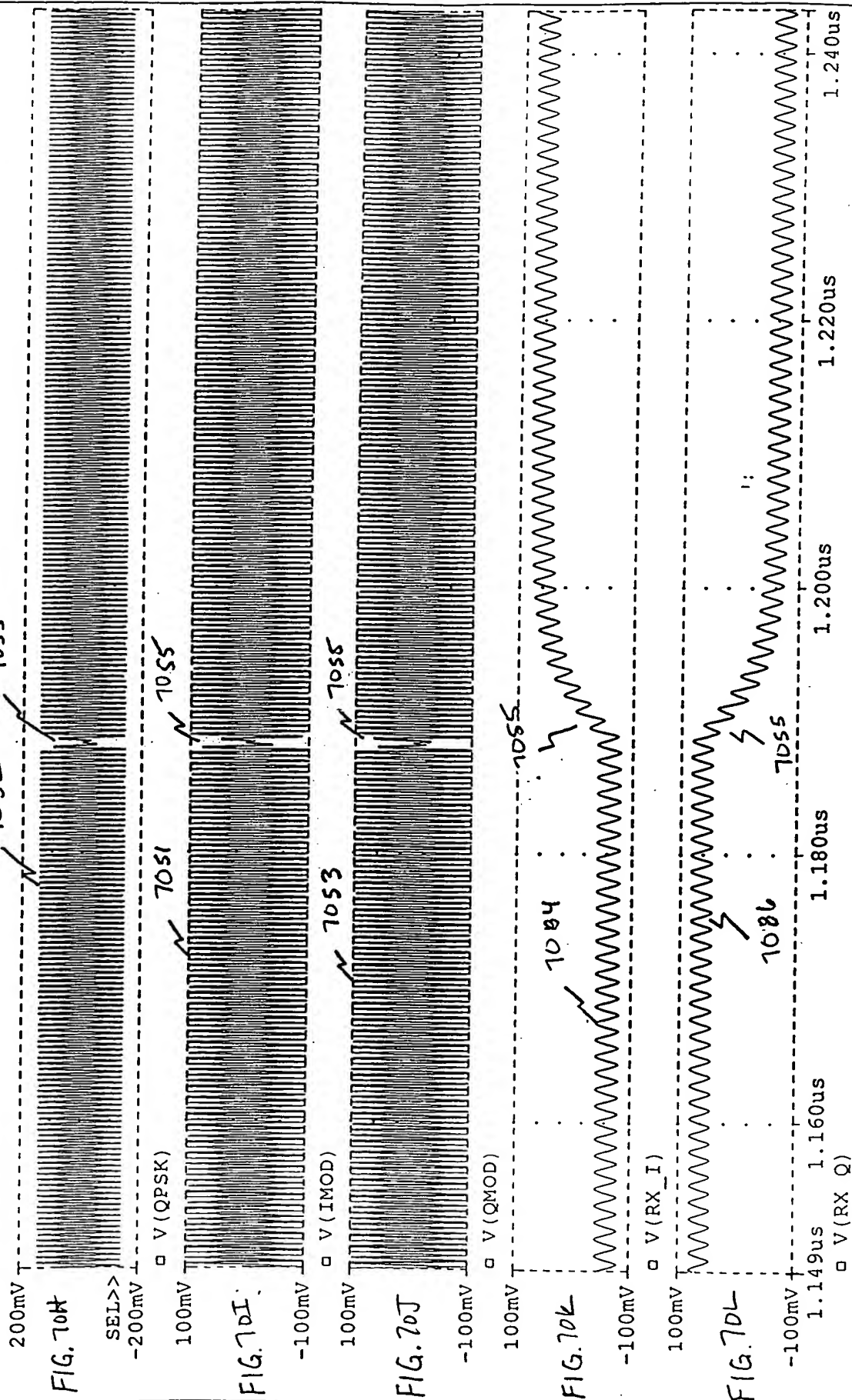


CONFIDENTIAL

(A) IQDEMOD SHOWING TIME RELATIONSHIP OF TX. I AND Q DATA

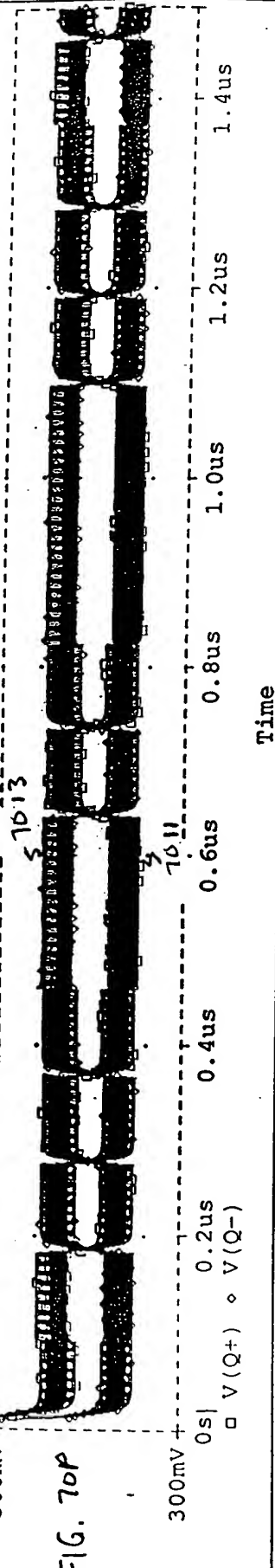
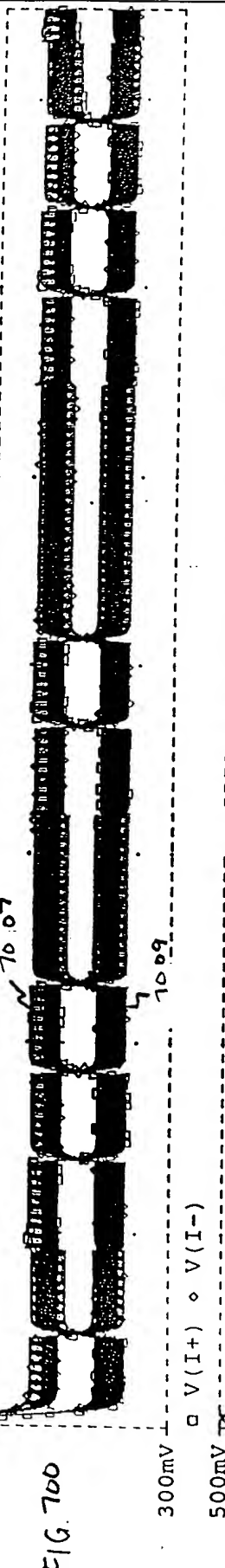
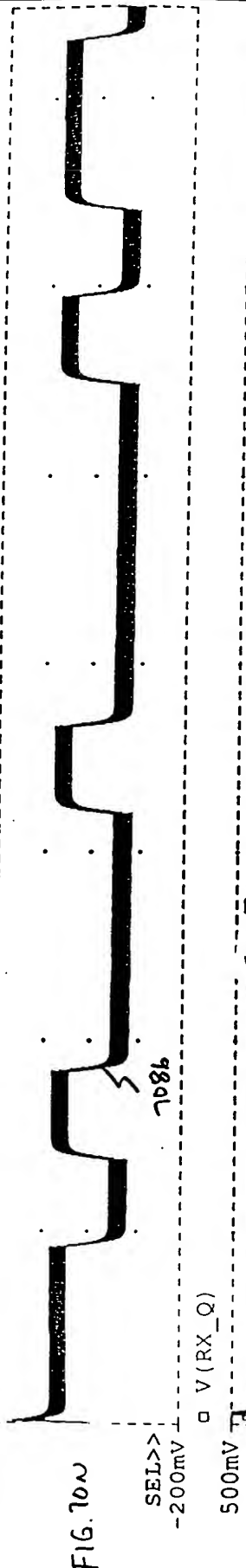
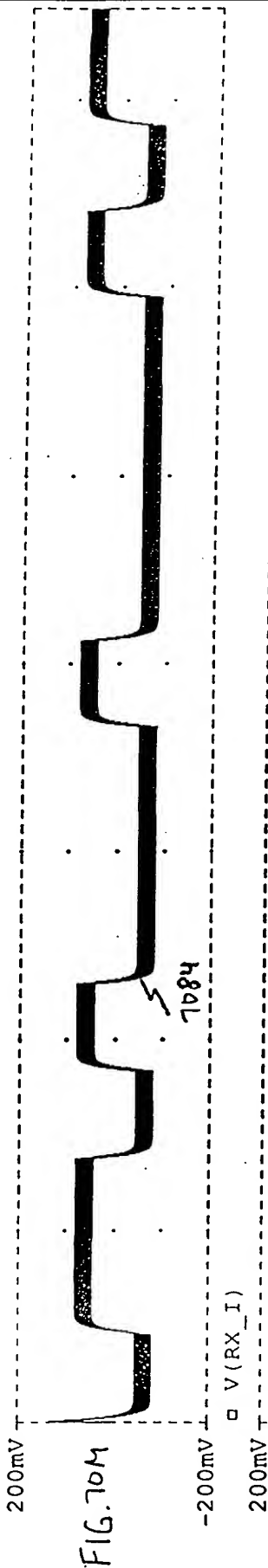


(B) IQDEMOD SHOWING QPSK MOD OUTPUT (TOP) WITH IMOD AND QMOD AND I AND Q DATA (BOTTOM)



Time

(B) IQEMOD RELATIONSHIP OF I AND Q RECEIVED DATA DIFFERENTIAL (BOTTOM) AND SINGLE ENDED AFTER DIFF AMP...



7091

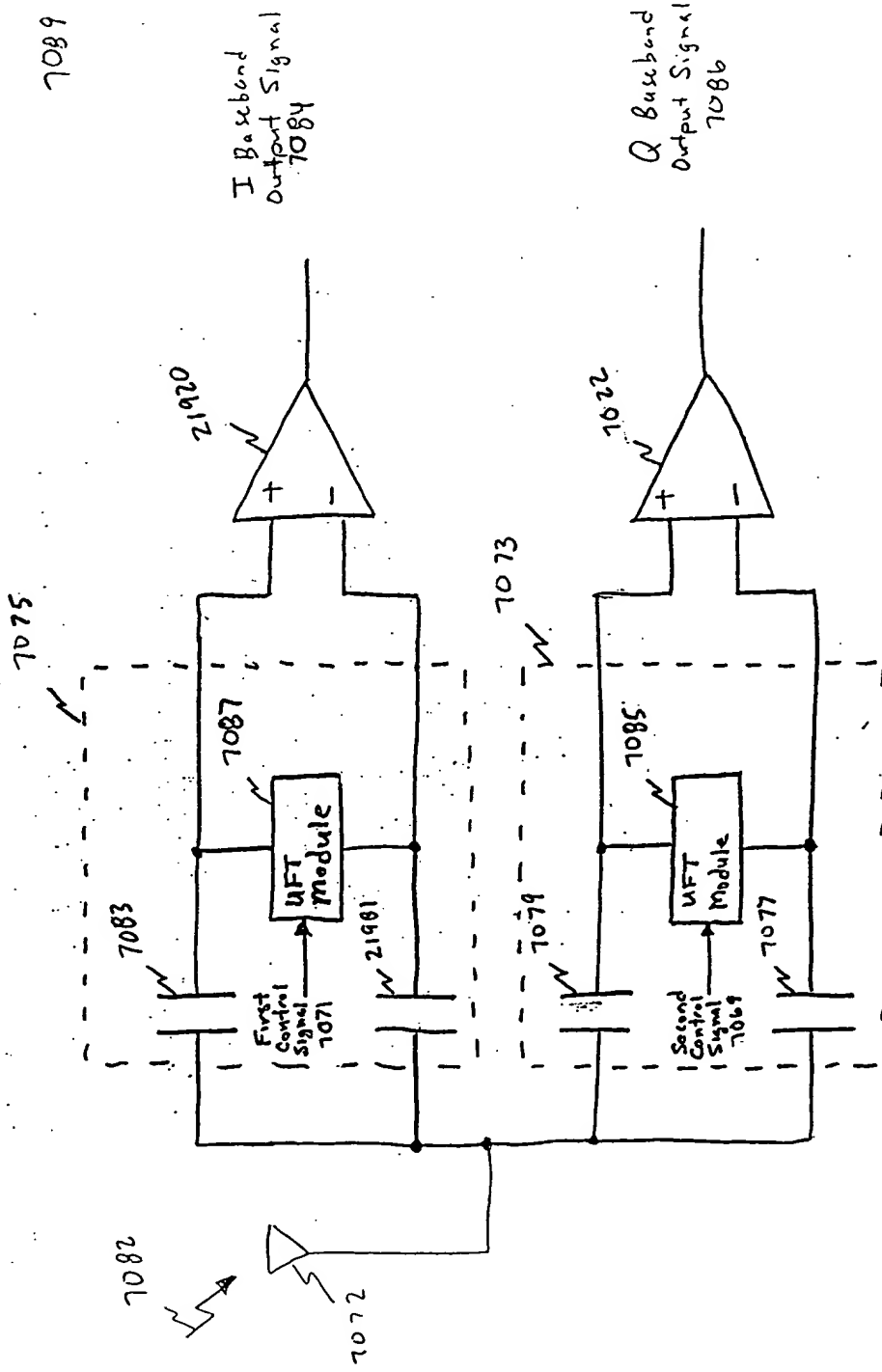


FIG. 70 R

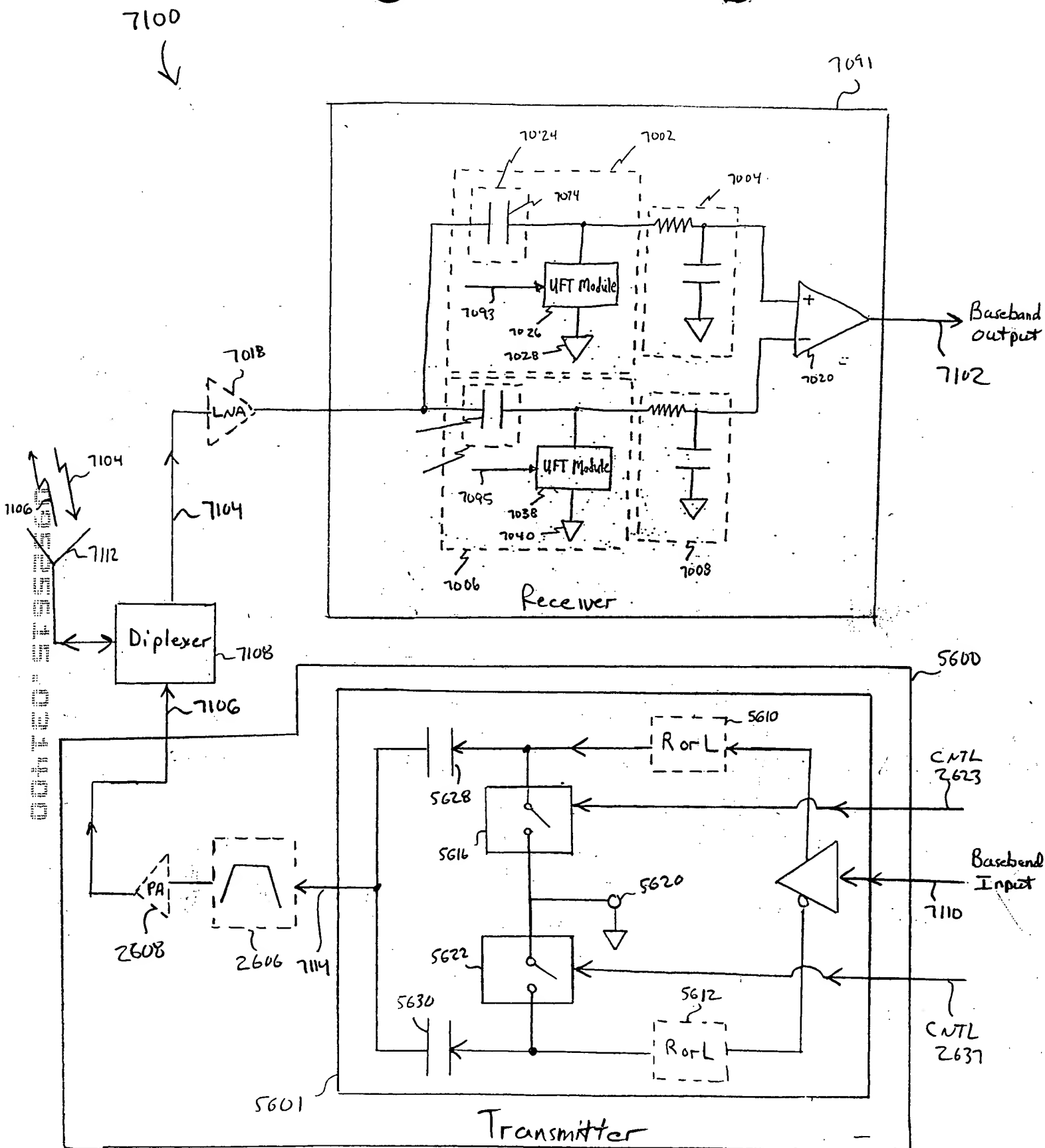
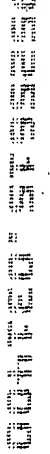


FIG. 71 : Transceiver



7200

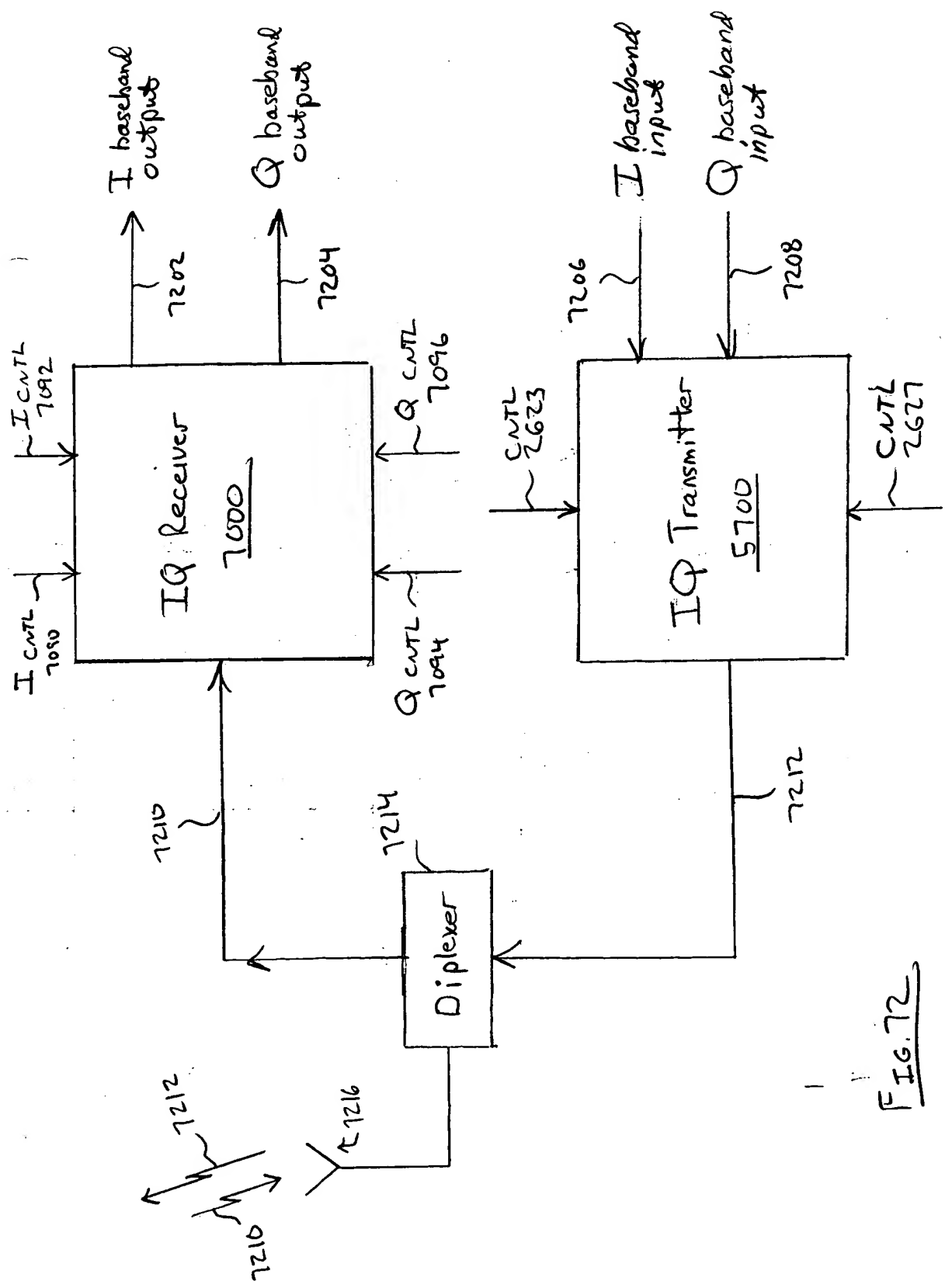


Fig. 72

7300  
↓

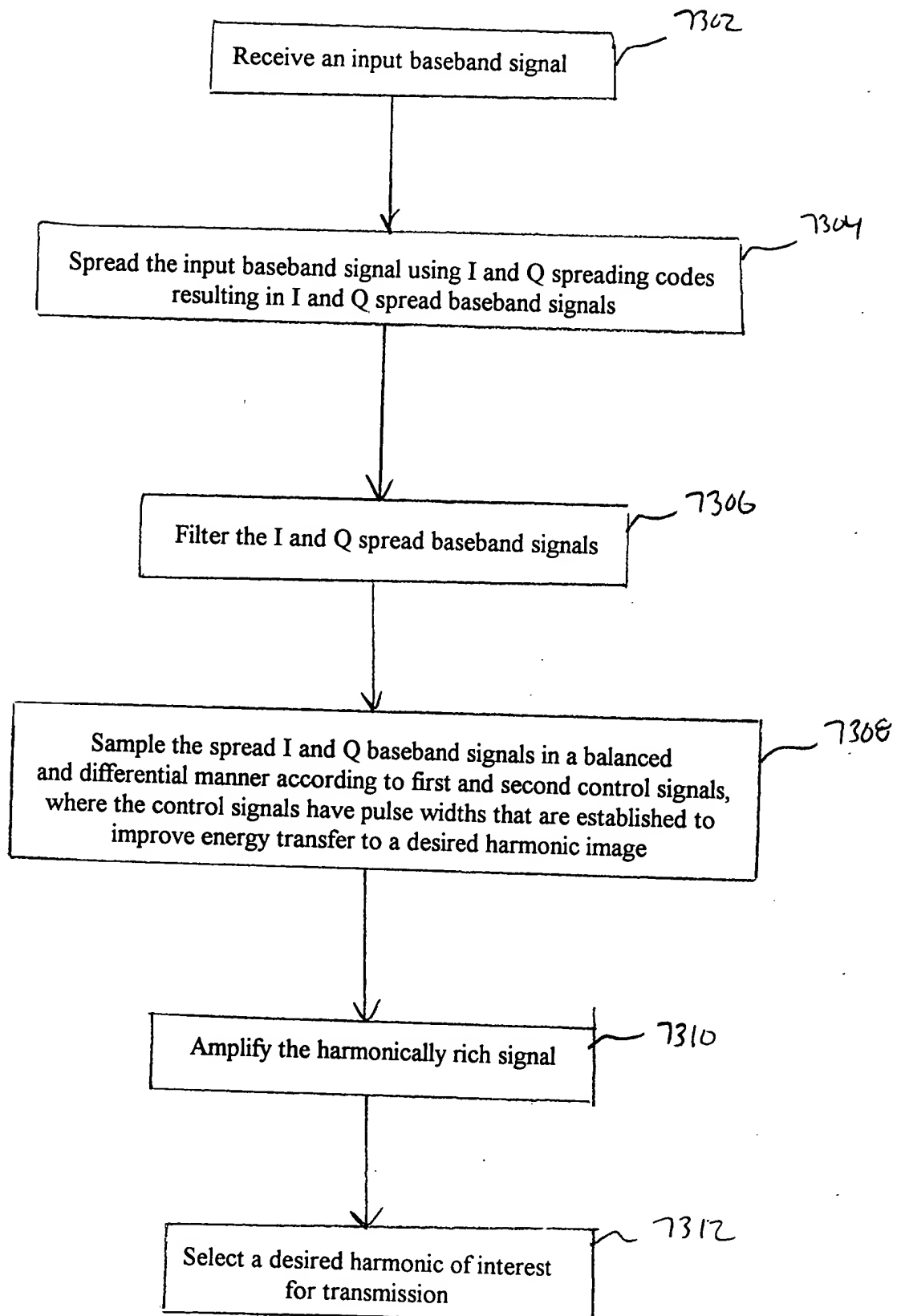


FIG. 73



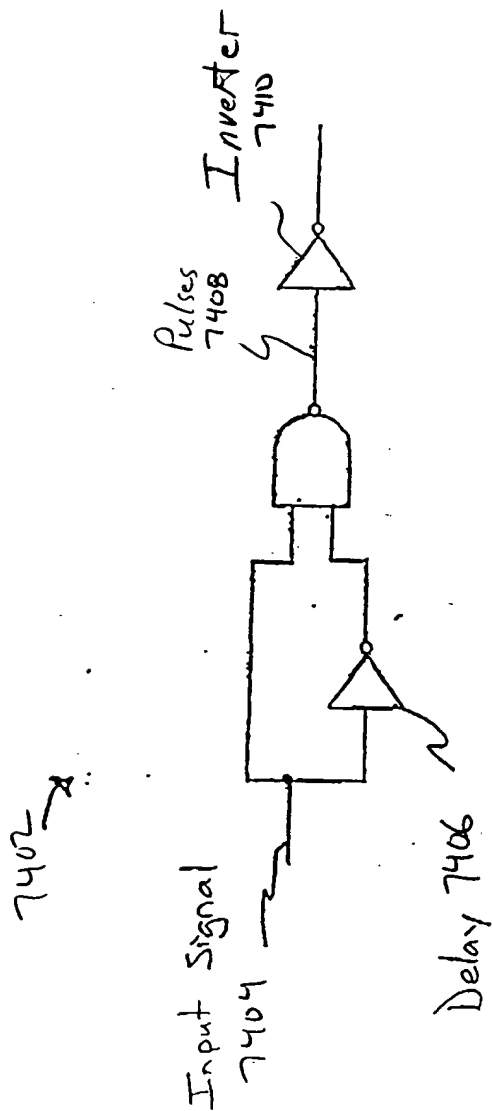


FIG. 74A

FIG. 74B

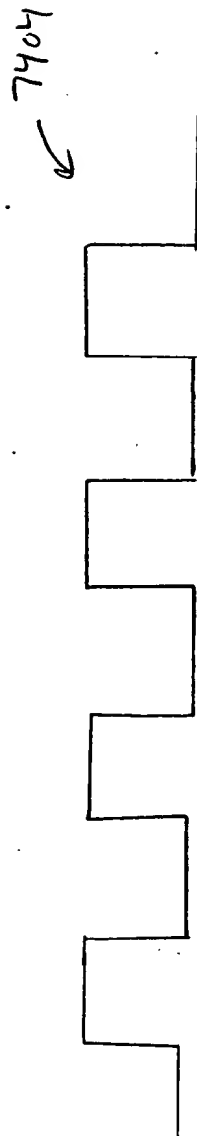
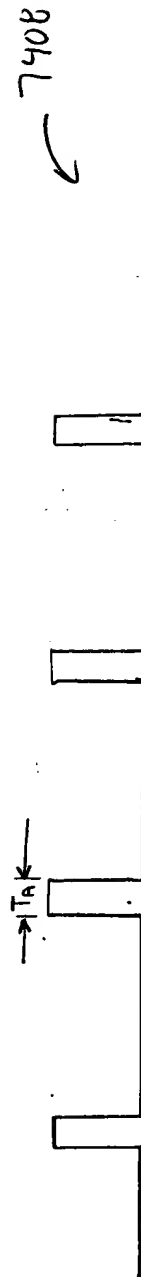
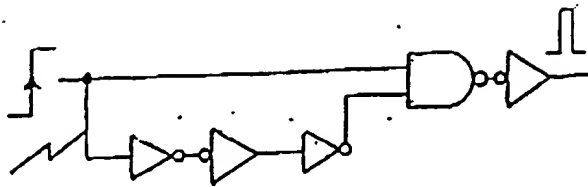


FIG. 74C



004420-332500

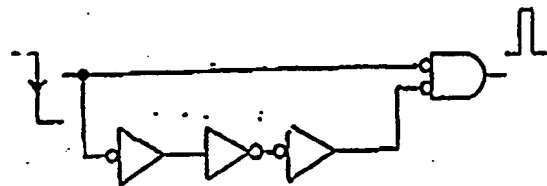
7412  
↓



A. rising edge pulse generator

FIG. 74D

7416  
↓



B. falling-edge pulse generator

FIG. 74E